Speeding up *the wagon of salvation*.

The effect of Norway`s Climate and Forest Initiative in Brazil.

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Bearing in mind that climate change is among the greatest challenges facing the world today; recognizing that cooperation on climate change issues can be instrumental in reducing greenhouse gas emissions on a global scale and have a positive impact on the socio-economic development of developing countries and their communities (The Government of Norway and the Government of the Federative Republic of Brazil, 2008).

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Preface

First and foremost, I would like to thank my supervisor, Professor Geir B. Asheim at the University of Oslo, for his valuable feedback during this process. Thank you for constructive discussions and pointing me in the right direction.

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Oslo, October 3rd 2011

Anja Stuart Levorsen

Summary

The need to respond to the threat of climate change has become an important international policy concern. Because the forest sector accounts for approximately 1/5 of the total green house gas (GHG) emissions, Reducing Emissions from Deforestation and Degradation of Forests (REDD) has become an increasingly important issue in global climate talks. Although a global REDD agreement is still being discussed, several voluntary micro REDD initiatives, on various national levels, are under development and/or being implemented in developing countries. Reducing emissions from the forestry sector is considered to be the most important and cost-efficient short term approach to climate change.

The Government of Norway established the Norwegian International Climate and Forest Initiative (NICFI) in 2007, to support the establishment of an effective incentive structure for REDD. Currently, NOK 3 billion has been pledged to support developing countries initiatives on REDD. The motivation of this thesis is to investigate the following questions; *how should Norway`s contribution to the preservation of the rainforest be shaped, and which requirements should be considered essential in receiver countries for such initiatives to function long term?*

NCFI has pledged one billion dollars to the Brazilian REDD initiative – the Amazon Fund – which aims to preserve the Amazon Rainforest through supporting sustainable sub-national projects. As the Brazilian initiative on REDD is at an early implementation stage, and due to the Amazon Fund`s lack of transparency and continuous bottlenecks, several challenges must be solved before the initiative can be considered an ultimate success. However, Brazil has achieved results on REDD, not only due to the government's policy initiatives on REDD, but also due to micro- and macroeconomic factors, which have influenced the country`s demand and supply of forest products.

In 2009, Professor Elinor Ostrom received the Nobel Prize in Economic Sciences, as recognition of her analysis of economic governance, especially for Common-Pool Resources (CPR), also known as common property resources. Forest resources are considered CPR`s, because they can be characterized by subtractability (i.e. one persons consumption of the resource reduces the availability to others) and the difficulty of demarcating boundaries (i.e. indicating the difficulty of exclusion). These characteristics create CPR-dilemmas which can

only be solved by restricting access and creating incentives, such as user[1] specific rights to a CPR. Ostrom identified a necessary central core of trust and reciprocity among community members to be associated with the likelihood of successful collective action. This thesis consider Ostrom`s insights to be vital for understanding the importance of bottom-up policies to achieve successful forest management, and hence an effective and efficient REDD initiative in Brazil. Based on her main findings from a number of case-studies on CPR management, Ostrom has proposed eight guiding principles for successful and long-enduring CPR management.

In this thesis, I have applied Ostrom`s bottom-up approach to evaluate the effect of the Norwegian Climate and Forest Initiative in the case of Brazil. How far has *the wagon of salvation*[2] come? By using the Brazilian part of the Amazon rainforest as a case, this thesis considers a particular geographic area that contains a set of closely related CPRs. Furthermore, it focuses on two decentralized policy approaches in Brazil; Community Forest Management (CFM) and Payment for Ecosystems (PES), in addition to the important variable of Monitoring. Implemented appropriately, these policy mechanisms are considered necessary for successful forest management, and hence a successful national REDD initiative. This thesis identifies characteristics which need to be present for such approaches to be successful. Thus, institutional arrangements that establish local user's rulemaking autonomy, stimulate the flow of financial and institutional assistance for monitoring, and enforce local rules and forest preservation, in addition to safeguard the communities and their institutions from powerful, and at times corrupt, actors and agencies involved in forest exploitation, represent the main conditions needed for successful CFM. PES`s are intended to serve as economic incentives for local communities` sustainable use of forest lands. However, as emphasized in this thesis, PES`s are connected to property rights which pose several challenges to the success of such initiatives, due to the skewed Brazilian land distribution.

In summary, the Norwegian contribution to the preservation of the Amazon rainforest is mainly financial through its contribution to the Amazon Fund. Moreover, although the Norwegian initiative is considered to indirectly influence policies for sustainable development in Brazil, the commitment of one billion dollars will help speeding up *the wagon of salvation* in Brazil. However, REDD initiatives at multiple levels, representing a bottom-up approach,

[1] A *user* is defined as a forest dependent individual, living in and on the forest`s resources.
2 *The wagon of salvation* is a metaphor, indicating the substantial effect a successful REDD-initiative will have on the reduction of GHG emissions, and hence as a climate change mitigation.

are considered an important component of the fuel needed to help speed up the wagon. There are several challenges for the long term results and efficiency of NCFI in Brazil. However, the main challenges for whether the communities can benefit from approaches such as CFM initiatives and PES programs depend by large on the resolution of land tenure problems and user rights. Furthermore, both NCFI and the Amazon Fund should consider Ostrom`s design principles for successful governance as a starting point to examine whether a group of people qualify for REDD initiatives, and must continue to act according to no *one-size-fits-all* policy. Not surprisingly, substantial political will – with a nested sustainable social, economic and environmental policy – is considered essential for forests being *worth more standing than cut* in Brazil, as well as in the rest of the world.

Acronyms

BNDES:	Brazilian Development Bank
CBD:	Convention on Biological Diversity
CBFF:	Congo Basin Forest Fund
CFM:	Community Forest Management
COFA:	Guidance Committee of the Amazon Fund
COP:	Conference of Parties
CPR:	Common-Pool Resource
CTFA:	Technical Committee of the Amazon Fund
DAC:	Development Assistance Committee
FAO:	Food and Agricultural Organization
GDP:	Gross Domestic Product
GPFN:	The Government Pension Fund Norway
IPCC:	The United Nations International Panel on Climate Change
JFM:	Joint Forest Management
MRV:	Monitoring, reporting and verification
NICFI:	Norway's International Climate and Forest Initiative
Norad:	Norwegian Agency for Development Cooperation
PA:	Protected Area
PAS:	Sustainable Amazon Plan
PES:	Payment for Ecosystem Services/ Payment for Environmental Services
PFM:	Participatory Forest Management.
PPCDAM:	Plan for Prevention and Control of Deforestation in the Legal Amazon
PRODES:	Programme for the Calculation of Deforestation in the Amazon
REDD:	Reducing Emissions from Deforestation and Forest Degradation
UNCCD:	United Nations Convention to Combat Desertification
UNCED:	United Nations Conference on Environment and Development
UNEP:	United Nations Environmental Programme
UNFCCC:	United Nations Framework Convention on Climate Change

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1.0 Introduction:

According to the United Nations Secretary General; Ban Ki-moon (UNEP, 2011):

> *Climate change is the major, overriding environmental issue of our time, and the single greatest challenge facing environmental regulators. It is a growing crisis within economic, health and safety, food production, security, and other dimensions.*

Few people may be aware of that deforestation is responsible for approximately 20% of the annual global human caused greenhouse gas (GHG) emissions. Carbon dioxide (CO_2) is considered the main contributor to emissions of GHGs[3] (FAO, 2011:60). Plants and soils confiscate CO_2 through photosynthesis, but when forests are burned or cut down; their stored carbon is released back into the atmosphere through respiration (Ministry of the Environment, 2010). In perspective, current annual emissions from deforestation are comparable to the total annual CO_2 emissions of China or the US. About 130 000 km^2 – roughly the size of England – is lost every year (Eliasch, 2006). To create awareness around the human caused climate changes and the importance of preserving the world`s forests, 2011 is declared by the United Nations as the International Year of Forests.

Deforestation has, on a worldwide basis, consistently accompanied economic industrialization and increased global consumption. Forest areas are cleared away to make room for commercial agricultural recourses as industrial oil palms and soya plantations, timber, land to grow crops and cattle ranching. Today, most of the large-scale deforestation occurs in developing tropical countries (Stern, 2006).

The need to respond to the threat of climate change has become an important international policy concern, particularly as it has become evident that those most likely to be affected soonest and most severely are the poorest people in the developing world. In order to constrain the impact of climate change within limits that society will reasonably be able to tolerate, the United Nations International Panel on Climate Change (IPCC) has estimated the global average temperatures to be stabilized within two degrees Celsius. This goal is considered to be practically impossible to achieve without reducing emissions from the forest sector, in addition to other mitigation actions.

The concept of REDD – Reducing Emissions from Deforestation and Degradation in Developing Countries – is becoming increasingly important in global climate change

[3] Other GHGs are: Nitrous Oxide (N2O) and Methane (CH4). *To standardize the effect of different gas emissions, international convention measures greenhouse gas loading in terms of CO2 equivalents, represented by CO2e* (WBI, 2011:16).

discussions. But there is still a long way to go before international discussions turn into an actual sustainable forest agreement. In the center of conflict in negotiating a global REDD agreement lies the considerable amount of finance required[4], in addition to challenges related to developing mutually accepted rights and common principles for forest management. But although a global REDD- agreement is under heavily discussion, several micro-level REDD initiatives are under development and implementation. In essence, a national REDD-program is set up by a developing country, on their own initiative, and in return, it is funded by developed countries, individuals, NGOs or other financial actors, trough bilateral or multilateral agreements. Obviously GHG emissions are the result of numerous actions taken at multiple levels; national, regional and local levels. While many of the effects of climate change are global, the causes are, however, the actions undertaken by individuals, families, firms, and actors at a much smaller scale (Ostrom, 2009). Policies adopted at multiple scales are more likely to generate sufficient trust among firms and individuals resulting in transparent and comprehensive collective action that will effectively reduce global warming. This is the thoughts of one of the leading environmental economists in the world; the Indiana University Professor Elinor Ostrom. Ostrom`s polycentric[5] approach to climate change policy balances the major attention on the need for global solutions as the primary strategy for coping with climate change.

The issue of how to govern natural resources sustainably is a continuous discussion. Several policy approaches towards forestry preservation with varying solutions to property and land-tenure systems have been tried. *The tragedy of the commons* scenario long dominated the public environmental and agricultural policy in many developing countries. However, Ostrom`s alternative model has become an increasingly important competitor. Based on several case studies, Ostrom identified a necessary central core of trust and reciprocity among community members to be associated with the likelihood of successful collective action. Indeed, she found that given the right conditions, individuals self-organize and cooperate on governing their forest resources sustainably. In 2009, Ostrom received the Nobel Prize in Economic Sciences[6] as recognition of her analysis of economic governance, especially for common-pool resources (CPRs). A CPR is characterized by subtractability –

[4] The Eliasch Review (2008) estimated the finance required to halve emissions from the forest sector to 2030 to be around USD 17-33 billion per year, if included in global trading (Eliasch, 2006)

[5] Ostrom defines a polycentric system as *one where many elements are capable of making mutual adjustments for ordering their relationship with one another within a general system of rules where each element act with independence of others* (Ostrom, 2010:2).

[6] The prize was also appointed to Oliver Williamson.

one person's exploitation of the resource limits the resource availability to others – and the difficulty of exclusion – costly and challenging to exclude individuals from using the resource (Ostrom et al., 1999:278). Forest resources are considered a CPR, because they initially share the above characteristics, creating CPR dilemmas resulting in overexploitation of the resources. Hence, solving CPR dilemmas involves two distinct elements: restricting access and creating incentives. Ostrom`s CPR theory has been used to argue for decentralized management as necessary governing the commons and promote sustainable CPR management. In this context, I will investigate the importance of the following three policy mechanisms, which implemented the right way, are considered necessary for successful forest management and hence efficient (i.e. reduced costs) and effective (i.e. reduced emissions) long-term REDD program.

Community Forest Management (CFM) represents a decentralized forest management approach, whereby communities are given forest management responsibilities. CFM share similar characteristics of Ostrom`s *self-governed forest* and has proven to be an effective model for reduced deforestation.

Payment for Ecosystem Services (PES) is a voluntary sustainable forestry contract between a payer and a receiver. PES programs are in essence considered as economic incentives given to local families, farmers, individuals and/or communities in return for their sustainable forest management. In many ways, PES is the micro-version of REDD – which is also characterized by a result-based payer-receiver mechanism. PES-payers range from private funds, the State, individuals, businesses and/or NGOs.

Monitoring, Verification and Report (MVR) systems are important components in avoiding moral hazard and fee riding in CFM and PES programs. In addition, monitoring is essential in mapping deforestation and setting baselines. Monitoring through satellite technology and through on the ground initiatives are both necessary to achieve local forest preservation.

Today many governments and community organizations recognize that actions undertaken at a local level are a major source of carbon emissions, and that a need exists to tackle these at the local level, as well as at higher levels.

Brazil has a relevant role to play in the fight against climate change as it is the largest rainforest country in the world. Around 60% of the Amazon Rainforest and 30% of the world's remaining rainforests are located within Brazilian territory. Moreover, Brazil has the most concentrated distribution of land in the world, serving as an important variable in forest

management conflicts. Economic growth and a skewed distributed forest-management are essential drivers of deforestation in the Amazon region. Unlike the more industrialized countries, the main source of emissions in Brazil is the forestry sector, making Brazil the planet's fourth-biggest polluter (McKinsey, 2010). In 2008, in an attempt to prove to the international community that Brazil was willing to take the climate change discussions seriously, the Brazilian Government established a national REDD-initiative; the Amazon Fund – to conserve the Amazon Rainforest. Today, even though being in its early stages, Brazil`s initiative on sustainable forest management is globally considered as cutting-edge because of the country`s achieved results on REDD. However, as shown later in this paper, several challenges still remain for the long-term success of the preservation of the Amazon.

The Brazilian initiative is of interest because it aims to establish a path to collective learning, shared responsibilities and incentives for good practices.

The Norwegian Government links climate change to development. Hence, promoting sustainable development and poverty reduction is the overriding objective of the Norwegian foreign and development policy. Norway was the first country to financially support the Amazon Fund. To this date, the Government of Norway has pledged USD one billion towards the Fund by 2015. This result[7]-based contribution is considered as a way to showcase the objectives of the 2007 established Norwegian International Climate and Forest Initiative (NICFI) – i.e. an inclusion of a forest mechanism in the post 2012 Kyoto climate agreement. Moreover, the Norway-Brazil REDD partnership is intended to provide the first international examples and experiences (i.e. lessons learnt) with partnerships of this nature. In addition to giving financial REDD- support to Brazil, NCFI also contributes to the funding of national REDD schemes in Indonesia, Tanzania, the Democratic Republic of Congo[8] and Guyana.

The motivation of this thesis is to investigate how Norway`s contribution to the preservation of the rainforest should be shaped, and which requirements should be considered essential in receiver countries[9] for such initiatives to function long term? I will, based on Ostroms bottom-up approach, evaluate NCFIs effect in Brazil, with an emphasis on CFM, PES initiatives and Monitoring. This thesis will identify certain characteristics that need to be present for such approaches to be successful, and attempt to evaluate whether the Norwegian Initiative and the related institutional arrangements in Brazil possess these characteristics.

[7] Result based payments: countries only receive payments for verified reductions in deforestation.
[8] Congo`s national REDD-initiative; the Congo Basin Forest Fund, was established by the United Kingdom and Norway. The Congo Basin is the second largest rainforest country. The NCFI support to the Fund goes through the African Development Bank (Fosse, 2009:11).
[9] The receiver country is limited to the case of the Amazon Rainforest in Brazil.

1.1 Connecting Sustainable Development, Climate Change and Poverty

Both environmental threats and poverty are considered main challenges for accomplishing sustainable[10] development[11]. *Sustainable development* is a broad term and is defined in many ways. The most well known definition is however defined by The World Commission on Environment and Development (WCED), presented in *Our Common Future*, also known as the Brundtland Report (1987):

> *Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs*.

Consequently it can be interpreted as development that lasts *forever*. In essence, sustainable development is a process of change in which the exploitation of resources, the direction of investments, the orientation of technological development, and institutional change are all in harmony and enhance both current and future potential to meet human needs and aspirations. As the WCED stated in 1987;

> *Sustainable development is the new concept for economic growth* (Brundtland, 1987).

However, it is not straight forward to judge and agree on whether a given development is considered as good or bad. Most economists would probably define sustainable development as (Moe, 2007:8):

> *Development where the level of welfare, or living standards per capita broadly defined, are not decreasing over time*.

Currently around two thirds of global GDP is produced in developed (OECD) countries making these countries the major contributors to the emission of GHGs globally (Moe, 2007). Thus scholars have argued that the developed countries should bear the primary burden for solutions (Ostrom, 2010). Developing regional solutions and national strategies, *learning from each other* and strive for *good practice* to enhance sustainable development, are both useful and necessary to reduce the risks of future threats to global sustainability. Global mechanisms and policies are also necessary to secure long term sustainable development. Even if some global agreements are in place, many policy measures that influence development processes are the responsibility of nation states. The responsibility for coordinating Norway`s policy on

[10] A synonym for the word sustainable is *maintainable*.
[11] Development is considered to be driven by man or real made capital, human capital, natural capital, social and political institutions and their governance and technological developments. Saving – the creation of a surplus for investment – is a core aspect of longer term development (Moe, 2007).

sustainable development lies with the Ministry of Finance[12]. Norway actively seeks to promote sustainable development by including environmental support in development aid and by prioritizing institutional strengthening. The challenge of sustainable development is seen as an integral part of longer term development policies, which grows out of neoclassical growth theory[13] including recent additions and modifications. During the last eight years several European countries[14], including Norway, have established Sustainable Development Strategies to guide longer term policies in sustainable directions. The Government of Norway presented *The Norwegian Sustainable Development Strategy* at the Johannesburg Summit in 2002. In 2003 it was followed up by a *Norwegian Action Plan for Sustainable Development, National Agenda 21* (NA 21). NA 21 was presented by the Norwegian government to the Parliament in 2003, but it was not actively implemented and published in the National Budget until 2007. The adopted revised SD strategy replaced both these initiatives. The main policy concerns in the revisited Norwegian SD Strategy are the following (Moe, 2007:14):

- *International Cooperation for Sustainable Development and the Fight against Poverty,*
- *The Climate, the Ozone Layer and Long Transports of Air Pollution,*
- *Biological Diversity and Cultural Heritage,*
- *Natural Resources,*
- *Hazardous Chemicals,*
- *Sustainable Economic and Social Developments*.

This strategy underlines a need for increased focus on social dimensions. However, it also highlights that a national sustainable development strategy should not only focus on national sustainability, but also on the Norwegian contribution to global sustainability.

The Earth has experienced considerable temperature increases during the last 100 years, especially in the most recent decades. The history of the Earth encompasses climate changes, from ice-age to the beginning of modern times, but the last decades are by many scientists considered unusual in terms of both magnitude and rate of change. Global climate change has already had observable effects on the environment (Fulton, 2003:2). Satellites and

[12] Furthermore, The Ministry of Finance coordinates economic policies, tax policies, budget policies and financial market policies, and it participates actively in structural- and sectorial policy making (Moe, 2007) .
[13] An economic theory that outlines how a steady economic growth rate will be accomplished with the proper amounts of the three driving forces: labor, capital and technology. The concepts of wealth and capital as a basis for development and welfare go back to the 18th century and to the most famous economists in history: Adam Smith and David Ricardo. Robert Solow revived interest in classical growth theory in the 1950s. His work on neoclassical growth theory is summed up in his book: *Growth Theory: An Exposition* (1988) (Moe, 2007:.5-6).
[14] E.g.: Switzerland in 2004, the UK in 2005 and by Sweden in 2006 (Moe, 2007:2).

other technological advances have enabled scientists to see the big picture, collecting many different types of data about our planet and its climate on a global scale. Climate time-series data document a changing climate. Moreover, estimations show that the world`s temperature is heading for an average increase of approximately 4°C. Such a temperature increase will potentially cause a high risk of harmful and irreversible climate changes, such as major extinctions, threats to food supplies and the collapse of the huge Greenland ice sheet. To prevent this from happening, the IPCC has estimated a long-term global stabilization target of an average rise in temperature at a maximum of 2°C over pre-industrial levels. Achieving this global stabilization target will require strong and urgent international action. Consequently GHG emissions must both peak by 2015 and be cut by 50–85% relative to the 2000 level by 2050. Developed countries must reduce their emissions by 25-40% by 2020, and developing countries with rapidly growing emissions must also cut their emissions substantially below estimated levels. Forest emissions are part of the larger global challenge of climate change. Deforestation and forest degradation release stored carbon into the atmosphere as CO_2 emissions. Given the high rates of current global forest loss, reducing CO_2 emissions from deforestation and degradation is considered to make a major contribution in meeting an emission stabilization target, in climate change mitigation, and in promoting sustainable development (Eliasch, 2008:1-6). Nonetheless, reduced emissions alone do not cure all ills. Due to the slow nature of the climate system, climate change will probably continue for generations. This intensifies the importance of planning ahead in order to adapt to the estimated effects of the climate changes. All humans possess resources within themselves, for instance knowledge and culture, as well as resources provided in their local areas, such as access to water, livestock feed and education. However, marginalized and poor people have fewer resources than others and will most likely be more vulnerable to climate change, which adds to their daily struggle to feed themselves and their families. According to the Development Fund (2008);

> *the relationship between poverty reduction and climate change adaptation is not straightforward, and theoretical results can be diffuse and difficult to translate into concrete changes in development activities in local communities. Much of the research on the linkages between poverty and vulnerability to climate variability and change concludes that climate adaptation measures must be context-specific yet comprehensive, addressing a broad range of factors and scales.*

Climate change is clearly not the only process that is affecting households and communities in developing countries. Many other ongoing environmental and societal changes influence the capacity of households and communities to respond to stress and shocks. These complex interactions make it difficult to isolate measures that can be considered as *adaptation to climate change*[15]. Currently there are many measures that may reduce climate change impacts, but obviously adaptation to climate change will not necessarily contribute to poverty reduction, and vice versa. Some adaptation measures may provide benefits to a particular sector or group, yet may have negative consequences for others, or even create new types of social, economic, and environmental problems. It is important to evaluate the consequences of climate change adaptation measures for poverty reduction. Consequently one may argue that we need *sustainable* adaptation measures that contribute to both poverty reduction and more climate-resilient societies (The Development Fund, 2008).

1.2 A snapshot of the evolution within the international roadmap of sustainable development – are we moving towards a greener economy?

The United Nations considers climate change to be the defining challenge of our generation, - emphasizing the fact that GHG emissions do not know country borders (UNEP, 2011).

The First World Climate Conference was held in Geneva in 1979, sponsored by the World Meteorological Organization (WMO)[16] and other international bodies. As a relatively new topic in international talks, climate change and its possible impacts on human activity, like agriculture and forestry, was the leading focus at the conference. The conclusions were summarized in the Declaration of the World Climate Conference documenting that as early 1979, the international community urged governments to recognize the importance of reducing potential man-made changes in climate by *identifying the leading cause of global warming as increased atmospheric concentrations of carbon dioxide resulting from the burning of fossil fuels, changes in land use and deforestation*. Nine years later, in 1988, the World Meteorological Organization and the United Nations Environmental Program

[15] Adaptation to climate change is defined in numerous ways. Variations in defining adaptation are probably rooted in the fundamental difference between definitions of climate change provided by the UNFCCC and the IPCC. I will use the definition provided by the IPCC: *Adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities. Various types of adaptation can be distinguished, including anticipatory and reactive adaptation, private and public adaptation, and autonomous and planned adaptation* (IPCC TAR, 2001).

[16] The WMO is a specialized agency of the UN for meteorology (climate and weather) which entered into force in 1950. It consists of 188 member states and territories, meeting for discussions every four years (WMO, 2009:3)

(UNEP)[17] established the Intergovernmental Panel on Climate Change (IPCC). The IPCC is both an intergovernmental and a scientific body, providing an objective, scientific view concerning climate change, its potential socio-economic and environmental impacts and realistic response strategies. The IPCC`s findings are summarized in the Assessment Reports. The First Assessment Report was published in 1990 and provided valuable information for the upcoming 1992 UN Conference on Environment and Development (UNCED) [18]; the Fifth Assessment Report, will be released in 2013/14 (Boisson de Chazournes, 2008). During the 1992 Earth Summit in Rio de Janeiro, governments agreed on four important environmental instruments; the Principles for a Global Consensus on the Management, Conservation and Sustainable Development of all Types of Forests (the Forest Principles) and the Rio Convention consisting of the United Nations Framework Convention on Climate Change (UNFCCC), the Convention on Biological Diversity (CBD), and the United Nations Convention to Combat Desertification (UNCCD). This is considered as the first international step in confronting the challenges of environmental changes, sustainable management and use of our natural resources for the benefit of future generations. The three Conventions and the Forest Principles represent international concerns on a variety of environmental issues. The Forest Principles, while not legally binding, contribute significantly to the proper management, conservation and sustainable development of forests. Although considered at the time for being too weak, in retrospect the Principles played an important role because they set a priority of international targets for forest management. In 1995 the 1st Conference of Parties of the United Nations Framework Convention on Climate Change (COP1) was held in Berlin. The COP is the supreme body of the UNFCC and takes decisions to promote the implementation and reviews the effectiveness of the Convention regularly (Boisson de Chazournes, 2008). As an addition to the UNFCC, the Kyoto Protocol was established in 1997, but was not officially enforced until 2005. The Kyoto-agreement is the first and only binding international agreement between industrialized countries, that sets emission reduction targets for all GHG by 2012 relative to 1990 levels (Ostrom, 2010). However, GHG emissions from deforestation and forest degradation are not included in the Kyoto Protocol commitments. Currently 192 states[19] have ratified the protocol. In 2005, the 11th Conference

[17] The UNEP was established in 1988 as the voice of the environment in the UN system
[18] UNCED is also known as the Rio Earth Summit.
[19] The United States (the worlds second largest GHG-emitter, after China) and Australia have not signed the Kyoto-agreement. The debate surrounding Kyoto concerns the fact that many of the member states have failed to achieve their binding emission cuts. The energy-intensive country Canada serves as an example here; as one of the first countries to promote a global climate treaty, it has failed to meet its Kyoto GHG emission targets due to

of Parties of the United Nations Framework Convention on Climate Change (COP11) was held in Montreal. The conference was considered an historic event. The Parties to the UNFCCC marked the entry into force of the Kyoto Protocol; making Kyoto international law for those countries still inside it. As a result of the conference a proposal of Reducing greenhouse gas Emissions from Deforestation[20] and forest Degradation[21] (REDD) in developing countries was introduced. REDD represents an opportunity for partnership between developing and industrialized countries for the benefit of the global climate system. In essence developing countries are rewarded by the developed countries for protecting their forests, and hence for reducing their emissions from deforestation. In 2007 COP13 and the 3rd Conference of the Parties serving as the Meeting of Parties to the Kyoto Protocol (COP/MOP3) produced the Bali Action Plan. Both a roadmap towards a new international climate change agreement in Copenhagen in 2009, and a framework for negotiations to create an agreement that would replace the Kyoto protocol as of 2012, was established. The REDD proposal, which was forwarded for further consideration to the Subsidiary Body of Scientific and Technological Advice (SBSTA) of the UNFCCC in 2005, was adopted as part of the Bali Action Plan in 2008. REDD is a collaborative program with FAO[22] and UNDP[23], implemented in coordination with UNFCCC Secretariat and the World Bank Forest Carbon Partnership Facility. The UN-REDD Programme works both at national and international levels (un-redd.org). 2008 was also the year when the Climate Investment Funds (CIFs) were approved by the World Bank`s Board of Directors. CIFs consist of collaborative efforts between multilateral development banks (MDBs) and countries aiming to help developing countries to transform into more sustainable economies. The Strategic Climate Fund (SCF) is one of the CIFs. It consists of three[24] targeted programs designed to support development countries to achieve climate-resilient, low-emission development. The Oslo Climate and

political will and economic growth challenges connected to being the only nation in Americas with emission obligations. Indeed, challenges still remain as Canada, Russia and Japan confirmed, during the august 2011climate-talks in Bonn, that they will not support an extended Kyoto-agreement after 2012 (Greenwise, 2011).

[20] FAO defines deforestation as clear cutting- and conversion of forest to another land use (Lamb & Gilmour, 2003:4).

[21] Degradation is usually defined as the reduced capacity of a forest or loss of forest structure, productivity and biodiversity (Lamb & Gilmour, 2003:4).

[22] FAO: Food and Agriculture Organization of the United Nations (Lamb & Gilmour, 2003:4).

[23] UNDP: United Nations Development Programme.

[24] The three targeted programs are: Pilot Program for Climate Resilience (PPCR), Forest Investment Program (FIP) and Scaling up Renewable Energy Program in Low Income Countries (SREP) (First Climate, 2010).

Forest Conference in May 2010, culminated in the establishment of REDD+[25] Partnership, currently consisting of more than 55 countries. It was established as a forum of countries working to drive REDD in the absence of an agreement at the 2009 UN Copenhagen climate summit. The members organize their action within a global platform to enable effective transparent and coordinated fast action on reducing greenhouse gas emissions from deforestation and forest degradation in developing countries. REDD+ is an extension of REDD, and it stands for reducing emissions from deforestation and forest degradation in addition to increasing carbon stocks. Around NOK 25 billion has been pledged for the period 2010–2012 for pilot programs aimed at reducing GHG emissions from deforestation and forest degradation in developing countries (Ministry of Environment, 2010). REDD+ is estimated to be the most important and cost-effective short- and medium-run climate change improvement opportunity, and is therefore considered a key element in the negotiations on a post 2012 international climate treaty (Stern, 2006). The 16th conference of the parties (COP16) of the UN Framework Convention on Climate Change (which also was the 6th meeting of the parties to the Kyoto protocol) took place in Cancun, Mexico, from the 29th of November until the 10th of December, 2010. The agreement on a *green climate fund* fell short of the emission cuts that are needed, but it laid out a path to move towards it. The achieved agreement reinforced the promise made by the developed countries, the previous year, to mobilize billions for a green climate fund to help developing countries defend themselves against climate damage. Indeed, Cancun Climate Change summit did end with a small, but important, victory for forest campaigners. Under the deal, given the developing countries efforts to design and establish national REDD-schemes, tropical countries will receive result-based financial support for not burning or cutting down forests (Vidal, 2010).

So, are we moving towards a greener economy? Many governments believe that the forest industry has great potential in promoting a greener economy through the use of bioenergy, wood promotion activities and new wood based products and biomaterials. Additionally, several developed countries have increased their support for the development of forest industries over the last few years. However, deforestation is still progressing rapidly, particularly in the tropics. The current international climate change framework is a long way from reaching the emissions reductions required for the global stabilization target of limiting global warming to 2 degrees Celsius. If forest carbon is included in global emissions trading,

[25] The terms REDD and REDD+ are used interchangeably in my thesis. REDD is used here in a broad sense and includes the role of conservation, sustainable management of forests and enhancement of forest carbon stocks (i.e. REDD+).

the cost of halving net global CO2 emissions from forests by 2030 is estimated at USD 17-33 billion annually. This highlights the need for developed countries to step up their participation and financially support the developing countries in making national REDD schemes both possible and successful. Clearly, further actions are urgently needed, requiring significant policy changes at both international level and national levels. Furthermore, the full participation of forest communities and indigenous peoples will make reforms more likely to succeed and benefit the poor (Eliasch, 2008:28-32). In an effort to enhance the importance of accomplishing a legally binding agreement on REDD+, the United Nations has announced 2011 as the *International Year of Forests*, under the main theme *Forests for People*. It is yet to be seen if this proclamation has had an effect on regional-, national- and global political will to commit to increased participation on REDD. The next UN climate summit (COP17) will be held in Durban, South Africa, running from the 28th of November until the 9th of December 2011 (Greenwise, 2011).

2.0 Background

2.1 The Norwegian sustainable development goals:

Norway`s Environment- and International Development policy

Norway links climate change to development. The division between the rich and the poor, and the ever-increasing gap between the developed and developing worlds, pose a major threat to global wealth, security and stability. Promoting sustainable development and poverty reduction is an overriding objective of Norwegian foreign and development policy. As described by the Norwegian Minister of Environment and International Development; Erik Solheim (2006):

> *The ultimate goal of Norway's efforts is for developing countries to acquire the capacity and competence necessary to safeguard their right to a clean environment and the ability to manage their natural resources in a sustainable manner*.

Most Norwegians will probably consider Norway as a small, but influential country that often set international standards for ethical behavior and acts as a pioneer within aid, promoting international sustainable development. Norway has taken a genuine and important ethical lead on several international policy issues and it is these that, not surprisingly, its ministers stress and that the rest of the world often notices. However, the list of unethical policies is also long. The Norwegian government is the biggest donor to the Brazilian Amazon Fund, which is all about conserving the Amazon rainforest. Meanwhile, the Norwegian state-owned company Norsk-Hydro is expanding its aluminum production operations in Brazil. The main environmental problem with aluminum production is air pollution caused by fluoride emissions in the smelting process. Other documented problems are the pollution of water, solid waste, noise, and heat, in addition to indirect hazards to the environment due to the intensive consumption of electricity in the aluminum-smelting industry. Large areas have to be depopulated and flooded for dam building, changing the ecosystem of a whole area. This has potential negative effects on flora and fauna and even jeopardizes human health in the area (Acero, 1993). In 2010 Norway established a billion dollar deal with Indonesia on performance-based incentives on REDD. The same year the Norwegian Ministry of Finance announced the sale of USD 1.4 million shares that Norway's Government Pension Fund Global (GPFG) held in Samling, a Malaysian logging company. The decision was made after a review by the Norwegian Council of Ethics. But Samling is not the only destructive

company in GPFG's portfolio in Indonesia. Norway also invests in Golden Agri-Resources[26], a part of the highly criticized Sinar Mas Group. This conglomerate was formed in 1962 in Indonesia producing Pulp and Paper, Agribusiness, Property and Financial Services. Its plantations not only lack Forest Relinquishment Licenses and/or Timber Exploitation Licenses, they are also reported to be the cause of widespread rainforest and orangutan habitat destruction (Lang, 2010). According to the Rainforest Foundation (RFN) (2010) Norway`s GPFG invests in 13 known rainforest destroyers[27]. Investments in these companies have increased by 18 percent from 2009 to 2010. Domestically, the petroleum sector is Norway's largest industry and accounts for approximately 25% of GDP in the country. Norway is the fifth largest exporter of oil and the third largest exporter of gas globally (Offshore media, 2011). Emissions from the oil and gas industry include substances which are implicated in global warming and have local negative effects, such as acidification of lakes and forests. Arguably, Norway buys green credibility by donating to national climate funds like the Brazilian Amazon Fund, while also investing in environmental damaging projects. Moreover, it could be claimed that Norway is setting a double standard, where its own investments policy isn't held to the same standard as Norway wants tropical countries to apply. One may ask how ethical Norway's foreign and domestic sustainable development policy really is in practice. Emissions from deforestation and forest degradation are clearly an international – and not just a Norwegian problem. But Norway has the opportunity to set an example for the world by allying its sovereign wealth fund investments with its global goals to protect forests. Never before has mankind's ability to deal with the problems caused by climate change been greater than it is now. Not surprisingly, what is needed is political will. Although Norway's performance regarding international environmental policy has been, and still is, insufficient in some respect, Norway is considered the most generous of the OECD countries that are members of the Development Assistance Committee (DAC). Norway gives high priority to international environmental co-operation, implementing bilateral[28] and regional activities with its neighbors (co-operation with Russia in the 1990s, the Action Plan to Eliminate Pollution of the Arctic) as well as with developing countries. Norway has played an active role in international efforts to conserve biodiversity by supporting the establishment of the Cartagena

[26] Golden Agri-Resources Ltd is the world's second largest palm oil plantation. Located in Indonesia it produces palm-based edible oil and fat (GAR, 2006).

[27] I.e. oil and gas companies, oil palm plantations, logging-, pulp and paper-, and meat processing companies (RFN, 2010).

[28] The Norwegian Agency for Development Cooperation (NORAD) is a directorate under the Norwegian Ministry of Affairs and is responsible for bilateral funding. Their purpose is to improve economic, social, and political conditions for the populations of developing countries, with emphasis on the poorest people.

Protocol on Biosafety[29] in 2000, and by being the first country to ratify it in 2003. Norway aims to play a leading role in making environmental concerns an integral part of all development cooperation. In 2006 the framework for the Norwegian environmental co-operation was presented, outlined in the *Norwegian Government's Action Plan for Environment in Development Co-operation.* The action plan, which focuses on the use of Norwegian funds through multilateral and bilateral channels and dialogue with cooperation partners, sat the direction for Norway's efforts for the next ten years. The purpose of this co-operation is to contribute towards achieving the Millennium Development Goals (MDGs), making it possible for poor people to improve their living conditions and health. Besides development cooperation, there are many actors and processes that affect developing countries' ability to safeguard the environment to at least the same degree. One example is International trade policy; Norway aims to ensure that the global trading system promotes sustainable development (Solheim, 2006). In addition to these political goals, the multilateral environmental agreements; Agenda 21[30] and the Johannesburg Declaration[31], provide the basis for Norway's efforts to address global challenges related to the environment and natural resources as part of a common international effort. Norway has committed to ambitious climate targets for the coming decades. *Climate Cure 2020* was commissioned by the Ministry of the Environment and published in February 2010. Based on the target for a national emissions cut, laid down in the agreement on the Climate White Paper (i.e. the Climate Agreement) in 2008, Norway plans to reduce global greenhouse gas emissions by the equivalent of 100% of Norway's own emissions by 2050, and by 2020 cut global emissions of GHGs by the equivalent of 30% of its emissions in 1990. Forestry measures are estimated to give a net uptake of 3 million tons of CO2. Thus, domestic emissions shall be reduced by 12 to 14 million tons of CO2 equivalents, so that they do not exceed 45 to 47 million tons of CO2 equivalents by 2020. In addition, Norway will exceed its Kyoto commitment by 10% (Klif, 2010). Concerning the distribution of aid, development assistance accounted for 1.09% of Norway's estimated gross national income (GNI) for 2010. The overall goal of

[29] This Convention is an international agreement which seeks to protect biological diversity from the potential risks posed by living modified organisms resulting from modern biotechnology, taking also into account risks to human health (BCH, 2010).

[30] *Agenda 21 is a comprehensive plan of action to be taken globally, nationally and locally by organizations of the United Nations System, Governments, and Major Groups in every area in which human impacts on the environment* (DSD).

[31] The Johannesburg Declaration on Sustainable Development was adopted at the World Summit on Sustainable Development (WSSD), also referred to as Earth Summit 2002, in Johannesburg, South Africa. The Johannesburg Summit achieved a search for a common path towards a world that respects and implements the vision of sustainable development.

development assistance is to contribute to greater human welfare, taking into account the need for sustainable management of natural resources, while at the same time avoiding or reducing aid dependence (OECD, 1996). The Government of Norway stepped up its support for efforts to prevent deforestation in poor countries and allocated NOK 2.1 billion (USD 380 million) for this purpose in 2010 over the development assistance budget. This is an increase of NOK 650 million (USD 117 million) from 2009**.** The Government has promised NOK 27.1 billion (USD 4.6 billion) to the fight against poverty in 2011, - amounting the development budget to 1.02% of Norway's GNI (Ministry of the Environment, 2010).

2.2 REDD + and Norway`s International Climate and Forest Initiative (NICFI)

> *The primary objective of the Norwegian Government`s climate policy is to help establish a global, binding, long-term post-2012 regime that will ensure cuts in global GHG emissions sufficient to limit global temperature rise to no more that two degrees* (Norad, 2010:3).

As stated in the 2008 Eliash Review, several developed countries are already largely deforested. Deforestation primarily occurs in developing countries as they follow a similar path as the developed countries to meet their development needs. Generally countries cut and burn trees to be able to supply timber and agricultural products aimed to meet international and local demand. Demographic surveys show that during 2011 the world's total population will amount to 7 billion people. Projections for global population growth in 2050 show an increase to 9 billion people. Much of this rise will take place in developing countries. The World Bank estimates that by 2030 1.2 billion people living in developing countries (15% of world population) will belong to the global middle class[32]. Population growth and wealth creation increase the demand for agricultural- and timber products, and the clearance of forested land is currently meeting the growing demand for these commodities (Eliasch, 2008:36-49). Studies also show a link between growing population density and deforestation; the more people living in dense areas, the larger demand for deforested. Indeed, estimations show that approximately 20% of the total CO2 emissions stems directly from the forestry sector in developing countries. Sufficient incentives to conserve forests are therefor essential to accomplish reduced GHG emissions. Successful REDD initiatives will create important,

[32] Eliasch (2008:38) defines the global middle class as*: a family of four earning between USD 16 000 and USD 68 000 in purchasing power parity (PPP).*

cost-efficient and short term reductions in GHG emissions (Norad, 2010). Norway supports the establishment of an effective incentive structure for REDD under the UNFCCC. Norway`s International Climate and Forest Initiative[33] was established in 2008 as part of realizing the pledge made by the Norwegian government during the COP13 international climate negotiations in Bali. The Norwegian Government has promised to allocate up to NOK 3 billion (approximately USD 500 million) per year, over a five years period, to strengthen the international cooperation on REDD. In addition to providing financing to governments, Norway also supports advocacy, capacity building and demonstrational REDD projects planned and carried out by civil society and other third parties. The Norwegian Ministry of Environment has the overall responsibility of the Initiative. Issues related to the Initiative concerning foreign and development policy and disbursement of funds, is managed by the Ministry of Foreign Affairs, supported by both Norad and the Norwegian missions abroad (Norad, 2010:70). The Norwegian Ministry of Environment (quoted in Ragnhildstveit, 2010) states that:

> *The intentions of the Climate and Forest Initiative are to work towards the inclusion of emissions from deforestation and forest degradation in a new international climate regime, take early action to achieve cost-effective and verifiable reductions in greenhouse gas emissions, and to promote the conservation of natural forests to maintain their carbon storage capacity.*

Because developing countries differ in their capabilities, in short, the following three different phases has been set up as structures for the REDD mechanisms. As a first phase, countries must satisfy a set of minimum *readiness* requirements. These include infrastructure for monitoring, clarification of land tenure and institutional capacities for law enforcement. The second phase concerns the carrying out of policies and measures. The final phase states that measured emissions reductions and improved emission removals will only be credited based on actual performance (Ministry of the Environment, 2009). In sum the three phases can be explained by the term MRV; Monitoring, Reporting and Verification of forest related emissions and removals (Ministry of Environment, 2009).

The Norwegian Initiative is financed by official development assistance (ODA) funds, with a strong focus on the development of international finance- and support systems through cooperation with multilateral organizations. The Initiative supports the UN Collaborative Programme on Reduced Emissions from Deforestation and Forest Degradation (UN-REDD

Programme) managed by FAO, UNDP and UNEP, the Forest Carbon Partnership Facility (FCPF)[34] managed by the World Bank, the Congo Basin Forest Fund (CBFF) managed by the African Development Bank, and the Amazon Fund managed by the Brazilian Development Bank (BNDS). In addition, Norway has a bilateral contract with Tanzania, agreed on *a Memorandum of Understanding*[35] with Mexico, Guyana and Indonesia. The Norwegian Initiative includes the following three main intentions (Norad, 2010:70):

1. *To work towards the inclusion of emissions from deforestation and forest degradation in a new international climate regime,*
2. *To take early action to achieve cost-effective and verifiable reductions in GHG emissions, and*
3. *To promote the preservation of forests to maintain their carbon storage capacity.*

Trailing only the industrial superpowers; China and the United States, Indonesia is the world's third largest GHG emitter. Its emissions are almost entirely from its agricultural and forestry sector (approximately 80% of the country`s GHG emissions), which generate a small proportion of the country's total economic activity. In essence, the Indonesian rain forests are felled to plant palms for the palm oil, which is a component of biofuels (Fosse, 2009). 70-80% of the deforestation taking place in Indonesia is illegal. Between 1990 and 2005 the cutting and burning of trees resulted in the loss of nearly 28 million hectares (108,000 square miles) of the tropical forest. In 2009 Indonesia made international headlines when the Government announced its plans to reduce deforestation. According to President Susilo Bambang Yudhoyono, Indonesia aims at reducing 26% of their GHG emissions, and if granted international support; they have pledged to reduce emissions up to 41%, from a projected baseline by 2020. In May 2010, Norway and Indonesia signed a partnership, *the Letter of Intent*, supporting Indonesia's efforts on REDD and peat lands (Press release, 2010). The financing, lasting until 2016, has a short timescale to provide an opportunity for piloting new approaches rather than establishing any new long-term architecture for the environmental funding. Basically, a short timescale for funds are generally an important window of opportunity to try out new approaches and methods to secure the necessary financing for actions that respond to a changing climate around the world. Norway has pledged USD 1

[34] The FCPF Carbon Fund is the first multilateral initiative that will provide payments to forest countries that can show that they have reduced greenhouse emissions by not cutting or degrading their forests. The 21st of June, 2011, Norway signed an agreement worth USD 50 million with FCPF.

[35] The same as a letter of content defined as*; A written statement expressing the intention of the undersigned to enter into a formal agreement* (Dictionary, 2000).

billion over the next years to support Indonesia`s efforts. Obviously this does not cure all ills and challenges still remain in the battle to reduce deforestation. As already mentioned, many of the forests are the target of the plantation industry's expansion plans. Powerful interests—especially in the forestry sector—show little desire to change the status quo by bringing transparency to the system. Meanwhile corruption remains, enforcement of existing environmental law is rare and inconsistently applied, and the system for establishing and managing land tenure seems to be a political and legal minefield in some parts of the archipelago. Some argue that the entry of carbon finance will create political will to change the system; others argue that the money will end up being wasted or used to finance conversion of natural forests for industrial-scale oil palm and timber plantations. According to the UN secretary-general Ban Ki-Moon (Press release, 2010):

> *To succeed in the global battle against climate change, we need robust, action-oriented partnerships between developing and developed countries. President Yudhoyono of Indonesia and Prime Minister Stoltenberg of Norway are both global leaders on climate change. That they have now come together in an ambitious partnership to reduce emissions from deforestation, forest degradation and peat land destruction in Indonesia is good news for the world. I encourage others to join their efforts, and to create their own partnerships to help put the world on the path to sustainable, climate-resilient growth*.

The need to respond to the threat of climate change has become an important international policy concern, particularly as it has become evident that those most likely to be affected soonest and most severely are the poorest people living in developing countries. The most important effect of international aid on economic development takes place through long-term processes of change and improved conditions, not through direct capital transfers (Norad, 2009). The Norwegian Government launched the comprehensive Climate and Forest Initiative in order to promote early action on REDD. In addition to reducing emissions, the initiative aims to generate experience and provide useful input to the negotiation process. Several countries are in the process of developing national REDD strategies (phase one), – considered as a roadmap to move from the situation today towards a desired future scenario of reduced forest emissions.

2.3 Costs in REDD

Three different types of costs are usually presented in the literature concerning estimated expenditures in developing and establishing REDD-programs. The first cost is the opportunity cost[36] which arises if a national REDD strategy limits living conditions. According to the World Bank Institute (WBI, 2011:3), if there does not exist any compensation for such costs the result will be a continued overexploitation of forests or that the opportunity cost will result in the communities being worse off. The opportunity cost is one of the main reasons for the emergence of payments to ecosystem service (PES) providers, instead of the strict, inefficient top-down command- and control policy. PES is considered as a forerunner to REDD-programs because it pays private land-owners to safeguard their forest lands or reduce degradation of forest areas. In essence, the land-owners are compensated for their lost agriculture or cattle ranching profit. Accordingly, to make forest conservation attractive to landowners, the transfers must exceed their land opportunity costs. REDD projects also involves *implementation costs*[37] which are costs related to the actions or efforts needed for accomplishing a successful national REDD scheme. The third category of costs, related to the implementation of REDD projects, is *transaction costs*[38]; which are costs related to the setting up and running of a REDD governance system (WBI, 2011:6-7). Understanding and minimizing such costs are considered essential for the realization of REDD. These REDD costs[39] emphasize further why it is considered essential that developing countries receive grants and financial compensations from developed countries, like Norway, for their realization of national REDD programs. Not surprisingly, since rural, bio-diverse, economic, and social factors vary within and across countries, the costs of REDD will likewise be different from place to place.

[36] The opportunity costs of preserving forests can be calculated in numerous ways, but the most common ways are perhaps through *economic optimization, equilibrium models* or through *land prices being used as surrogates for the discounted stream of future deforestation returns* (Börner & Wunder, 2008).

[37] Examples of implementation costs are costs connected to: guarding of forests, replanting of trees and *providing capacity building, infrastructure and equipment to develop alternative livelihoods to communities* (WBI, 2011:6-7).

[38] An example of a transaction costs is the costs related to the establishment of MVR systems (WBI, 2011:7).

[39] The abatement cost curve compares the possible quantity of potential emission reductions given the opportunity, implementation and transaction costs, on multiple levels. Furthermore, the Global GHG abatement cost curve – which was established by McKinsey and Company (2009) – summarizes the technical potential to reduce emissions of GHGs at a cost of up to USD 80 per ton CO2e of avoided emissions (WBI, 2011:20).

3.0 Theoretical Framework: Elinor Ostrom`s Principles for Governing the Commons

3.1 Background: Linking Climate Change to the Economic Theory of Public Goods.

In economics, a public good[40] is non-excludable – i.e. it is available for all – in addition to being characterized by no-rivalry – which in essence means that even though some individuals choose to consume the public good, the amount of its supply is not reduced for the others. Because we all contribute to the emission of GHGs, according to Ostrom (2009a) the problem of preventing massive climate change is considered a global public good. Moreover, trying to solve the problem of providing a public good (such as clean air) creates a social dilemma[41].

> *A social dilemma occurs whenever individuals in interdependent situations face choices in which the maximization of short-term self-interest yields outcomes leaving all participants worse off than feasible alternatives* (Ostrom, 1998:1).

In other words, we will all benefit from reduced GHG emissions, however, the problem or dilemma which is created when providing such a public good is that we will benefit whether or not we pay the cost (e.g. whether or not an individual drives her car to work every day). Accordingly, beneficiaries cannot be excluded from the benefit of cleaner air. In other words, when consumers act according to their self-interest and take advantage of public goods without contributing sufficiently to their creation, we have a classic *free-rider* situation. The problem of free-riders occurs when several individuals decide to free ride on the actions of others, causing the *others* to stop contributing to the common-pool of collective goods. In terms of game theory, this *zero* contribution to the public good is considered the Nash-equilibrium[42] because any player does better acting according to their self-interest, regardless of what the other players do. Concerning the issue of climate change, the free-rider problem would mean that when countries and individuals free ride on each others actions, the end result would be a high risk of harmful and irreversible climate change. In other words, when

[40] A public good is also called a collective or common good. Classical examples of public goods are law enforcement and national defense. Obviously, in the real world there are few (if any) absolute non-excludable and non-rivaled goods.

[41] A social dilemma is also known as; a public-good problem or a collective-action dilemma.

[42] In essence, Nash equilibrium is characterized by being a player's most beneficial unilateral choice of strategy, given his/her pool of different strategies, and given information about the strategies of the other players.

more and more actors pull out, eventually no one will contribute, and the public good may vanish. Thus, the public good will be undersupplied if the contributions are voluntary[43]. This zero contribution theory supports the presumption regarding individual's lack of solving collective action problems, without externally enforced rules and sanctions imposed authorities. This is the core of the classic theory of collective action. In essence the theory predicts that rational agents are not likely to cooperate in certain settings, even when such cooperation would benefit all[44] (Hardin, 1968). This scenario is known as Hardin`s *the tragedy of the commons,* and has indeed dominated and received much support by traditional economists, resource economists and environmental economists since the 1970s. However, Ostrom[45], Janssen and Potee (2009) challenged this zero contribution theory. They examined whether there actually was a strong empirical support for the theory of collective action, and found that:

> W*hile many instances of free riding are observed in the array of empirical research, a surprisingly large number of individuals facing collective action problems do cooperate* (Ostrom et al., 2009:12).

Actually many of their observed groups of individuals had self-organized with solutions to collective action problems at small to medium scale. Furthermore, participants in the self-organized resource governance regimes, invested resources in monitoring and sanctioning the actions of each other so as to reduce the probability of free riding (Ostrom, 1990). Ostrom et al. (2009) showed that predictions from the conservative theory are challenged when used in situations involving social dilemmas where the participants trust one another to be effective reciprocators. Under the right circumstances, people are willing to accept additional efforts and costs connected with providing a public good. Essentially, Ostrom finds that it all depends on trust in the fact that others will also act. Furthermore, when individual's find that their future is affected, not only by their own choices and actions but also by others, they are more likely to participate and to monitor others. Ostrom`s empirical research on forestry and water resources (1990) found that user monitoring is most effective and more effective than

[43] However, the real world scenario contradicts this theory of no voluntary contributions. Indeed, several voluntary contributions to pure public goods take place, e.g. private donations to charity or voluntary contributions to different political engagements (Bergstrom et al., 1986:25).

[44] Example: The Kyoto Protocol. Unresolved collection action problems play an essential role in explaining the flaws and the delays in efforts to improve it or replace it, post 2012. Indeed, a negotiated effective and efficient global climate change agreement would be beneficial for all countries in the world. However, some countries may rationally prefer and hence negotiate for a weaker regime or none at all (at least for the time being), while others favor a strong regime.

[45] As I will discuss in next section, Ostrom challenged the classic collective action theory already in 1990.

government-, public- or private ownership alone. In light of her research, Ostrom proposed a need for change in our collective action assumptions.

3.2 Common-Pool Resources (CPR`s)

Ostrom is known for introducing the concept of *Common-Pool Resources* (CPR`s). In economics a CPR is also known as common property resource, characterized by subtractability – one person's exploitation of the resource limits the resource availability to others – and the difficulty of exclusion – costly and challenging to exclude individuals from using the resource (Ostrom et al., 1999:278). Classic examples of CPR`s are forests, fish-stocks, irrigation systems and rangelands (Ostrom et al., 1999). As in the case of public goods[46] creating collective action dilemmas, the two characteristics of CPR`s may create similar potential CPR dilemmas[47]. For instance, when facing open access or public property, people may consider others as their rivals and act as free-riders, thus, consuming as much of the resources as possible (Ostrom, 1990). Consequently, degradation will often occur in open access land, because of the absence of limits on exploitation (Ostrom et al, 1999:279). This will in most cases lead to unsustainable resource use, resulting in scarce, unpredictable, or variable resources through time and space. The latter is indeed another example of *the tragedy of the commons* scenario, where users are portrayed as trapped in a situation that they cannot change. As mentioned, only top-down policies, by external authorities – either through introducing socialism or privatize forest lands – are considered to solve such a public problem (Hardin, 1968). In 1990, Ostrom's book; *governing the Commons: the evolution of institutions for collective action* was published and has later turned out to become one of the most important works concerning institutional change. In her book she brought together evidence from long-lasting, locally managed, CPR- settings from around the world and showed that Hardin's conclusions were, in many cases, off-base. She describes CPR`s as different from both open and public property and claims that everyone could have access to and gain benefits from open or public property, but not to and from CPR`s. Accordingly, solving CPR dilemmas involves restricting access and creating incentives, such as creating user specific rights, for realizing sustainable forest management. However, empirical studies show that there are no overall *best practice* concerning sustainable CPR property regime.

[46] In linking public goods to CPRs; sustainable preservation of a CPR, such as forests, may be viewed as part of a solution to providing a global public good, such as clean air.

[47] Accordingly, CPR dilemmas include people acting according to their short-run self-interest, creating outcomes that do not benefit anyone's interests in the long-run.

Thus, CPR dilemmas continue to exist in several regulated settings (Ostrom, 2010). But, in her case studies of small to medium scale CPR`s, such as Swiss grazing pastures, Japanese forests, and irrigation systems in Spain and the Philippines field researches, Ostrom finds that collective action, communication and trust within groups of people are all possible when they realize that cooperation will increase their benefits or decrease their costs (Ostrom, 1990:26-27). This result has been used to argue for decentralized management as necessary for local development and environmental protection.

Although Ostrom emphasizes that each case-study must be evaluated in their own terms, she has proposed eight general guiding rules, also called design principles, for successful and long-enduring[48] CPR management[49] (Ostrom, 1990, table 3.1:90):

Principle 1**:** *Clearly defined boundaries and access rights to the resource.*
This first design principle deals with the importance of well defined boundaries around a community of users and around the resource system this community uses. The principle relies on a crucial distinction in both CPR`s and networks; the distinction between property rights and user rights.

Principle 2: *Congruence between appropriation and provision rules and local conditions*. Rules that suit the local situation (i.e. the differing local knowledge and local conditions), and thereby respects the user groups circumstances and lie within their means. In essence, this design principle states that local conditions matter, and that a top-down imposition of external institutions that do not respect the local situations will fail.

Principle 3: *Collective-choice arrangements.*
Ostrom (1990:90) states: *Most individuals affected by the operational rules can participate in modifying the operational rules.* Hence, the principle emphasizes the importance of local knowledge in natural resource management. Local users have low-cost and first-hand access to information about their situation and thus a comparative advantage in devising effective rules and strategies for that location, particularly when local conditions change.

Principle 4: *Monitoring.*
Monitoring helps communities to observe the free-riders who don`t act according to the set rules, and thereby increases the likelihood that cheaters will be observed and held accountable. Additionally monitoring is a costly, but important tool that assists the effectiveness of rule enforcement mechanisms.

[48] To be long-enduring, institutions must have survived through several generations of users.
[49]Long-enduring CPR management is understood as the resource being sustained while local communities continue to derive benefits.

Principle 5: *Graduated sanctions*

This principle encompasses the power of sanctions. Punishment against individuals violating community rules will discourage other users from cheating. Hence the punishment should match the severity of the violation.

Principle 6: *Conflict-resolution mechanisms*

This principle states that systems with low-cost conflict resolution mechanisms (formal or informal) are more likely to survive. In the presence of established mechanisms for conflict resolution, differences in user`s interpretation of rules are avoided and collective action is maintained.

Principle 7: Minimal *recognition of rights to organize, by external government authorities.*

Again to avoid *top-down* management where externally imposed rules may not correspond to local conditions, this principle specifies that successful, community-based CPR management are the ones where local agents have the right to organize and thereby create their own institutions.

Principle 8: *Nested enterprises*[50]*,*

In successful systems, *governance activities are organized in multiple layers of nested enterprises* (Ostrom, 1990:90).

Indeed, the design principles are considered to produce the primary factors affecting the probability of long-term survival of an institution developed by the users of the resource.

Over the years a considerable amount of literature regarding both the validity and usefulness of the design principles has emerged, with differing conclusions. On the one hand the general criticism concerns the principles theoretical grounding, stating that they are incomplete and should incorporate additional criteria for sustainable CPR management. But the criticisms also emphasize that the principles are too precise with respect to the different conditions to which they might be applied. One of the critics is Ingvild Harkes. In her doctorial thesis she studied marine sasi fishery systems in Indonesia, and found that (Harkes, 2006:250-251):

> *The design principles of Ostrom (1990) and other scientists who have pursued this line of thinking thus are an interesting point of exit, but only partly explain the success of management institutions. Most of the conditions mentioned are merely characteristics*

[50] The term *nested enterprises* refers to interrelated (sometimes hierarchical) organizational components that take on complementary sets of responsibilities. Irrigation systems is an example of nested enterprises in CPR arrangements (Ostrom,1990).

of the community or institution, such as scale, village size, homogeneity, or the ability to exclude outsiders, and even though these factors undoubtedly contribute to their functionality, from our study it has become clear that the real 'glue' that keeps an institution alive over time are the social mechanisms, i.e., trust, legitimacy, and transparency.

3.2 A self-governed forest – Decentralized Forest Management

As emphasized in above, it is the importance of the everyday activities of individuals, families, firms, communities and governments, and proposes a multi-level approach for long-lasting, sustainable CPR management. Forests are considered an especially important CPR due to their role in climate-change related emissions and carbon sequestration, their biodiversity and rural livelihoods dependence in developing countries. According to Ostrom, tropical forests should be managed by the local users[51], through self-governance (Ostrom, 2005:132). A self-governed forest is a forest where users in the long-run are involved in the implementation and establishment of rules concerning the forest management. The users in a self-governed forest are perceived to self-organize in groups where they device their own policy to achieve a public good or regulate a CPR. Group size and heterogeneity within the group are widely expected to affect prospects for trust and the degree of variance in interests. These two variables are further assumed to influence predictabilities for collective action and long-term cooperation. In general, the smaller the group size, the bigger potential for interaction between the members of the group. Hence, the smaller groups are expected to have higher levels of trust between the individuals due to factors such as face-to –face interaction, which helps create identification and empathy among the group members. Accordingly, Ostrom and Poteete (2004:439) found that:

> *If high levels of trust create conditions agreeable to collective action, group size should be negatively correlated with collective action, suggesting that smaller groups foster higher levels of trust.*

But, the concept of self-governed forests is not presented without challenges.
Local individuals possessing more substantial economic and political assets may have similar interests to those with fewer assets, or they may differ substantially. In the latter, there is a

[51] According to Ostrom et al. (1999), users of a CPR include free-riders (those unwilling to cooperate in dilemma situations), those who only will cooperate given that they are protected against potential free-riders, those who initiate reciprocal cooperation based on receiving trust and potential altruists.

potential for a creation of elites in the community who benefits more from the CPR than the rest of the community members. In the former, when the more powerful have similar interests, they may greatly enhance the probability of successful organization if they invest their resources in organizing a group and develop rules to govern that group. Autonomy tends to reduce the cost of organizing. Furthermore, a group with little autonomy may experience that those who disagree with the community developed rules contact higher-level officials to achieve regulation. Indeed corruption and overexploitation have the potential to occur in self-governed forests, as well as other forest management approaches.

Ostrom`s design principles, however, serve as a general foundation for the creation of rules that can be used in a long surviving, self-governing forest system. The principles are perceived as enhancing the shared understanding of the benefits and costs involved in following a set of agreed-upon rules. If the users of tropical forest participate in mutual and direct bargaining and have the autonomy to change their rules, they may attempt to organize themselves, and hence cooperate. Furthermore, the decision to organize will depend on the resource systems characteristics in addition to the potential benefits and costs of achieving them. Although joint benefits may be created, self-organizing costs time and effort which can result in a short-term economic loss. Predictions about users perceived benefits and costs related to self-organize is tricky to foresee, because accurate and reliable measures are costly and difficult to obtain. As a response, Ostrom emphasizes the importance of *the productivity of a resource system.* A resource systems current productivity has a curvilinear effect on self-organization across all sectors. If the forest is already overexploited or degraded, users will not see a need to govern for the future. Accordingly, CPR users will have to observe some kind of shortage in the natural resource as an incentive to invest in self-organization (Ostrom, 2009b:420-421). Moreover, the chances of a self-governed CPR succeeding in the long run is considered to depend on whether the created institutions applies to Ostrom`s design principles.

4.0 Case Study: Deforestation in Brazil

4.1 The Brazilian part of the Amazon Rainforest

Roughly the size of Australia, the Amazon Rainforest stretches across nine South-American countries[52] and is thought to be the oldest tropical forest area on earth[53]. Around 60% of the Amazon lies within Brazilian borders making it home to the largest river system on the planet; the Amazon River,– representing about one-fifth of the fresh water volume on the world's surface. Deforestation in the Brazilian Amazon area[54] destroys habitats, plants and animal species, indigenous to the rainforest area. Indeed, to this date, approximately 20% of the Amazon rainforest is lost (Ministry of the Environment).

Trees and plants continuously recycle carbon dioxide into oxygen. But forests also provide important non-carbon benefits such as environmental services, which includes water and biodiversity conservation, both important for human well being. Forests are also important sources of livelihoods for many people around the world (Brown et al., 2008). Indeed, many indigenous people inhabit the Amazon; - whereas some live in areas that are still inaccessible. Forest people have extensive knowledge about their environment, including the active ingredients of many plants, which they use as medicine. The potential for REDD to keep forests standing, and protect these livelihoods, is gaining increasing attention. According to the Rainforest Foundation Norway (RFN, 2010):

> *Indigenous peoples and local communities are traditional forest stewards and have collective, customary rights to their forests and resources. As they will be most directly affected by REDD activities, their full and effective participation must be ensured when REDD policies are being designed and implemented, in accordance with the principle of Free, Prior and Informed Consent.*

More than 20 million people live in the Brazilian part of the Amazon, - including more than 220 different indigenous peoples` consisting of approximately 370 000 people, speaking 180 different languages (Ministry of the Environment, 2008). Moreover, the indigenous peoples' territories have proven to be the areas with the lowest rate of deforestation. As a result of the COP 15 an overall international consensus emerged; lasting reduction of GHG emissions is

[52] Brazil, Bolivia, Colombia, Ecuador, French Guiana, Guyana, Peru, Suriname and Venezuela (
[53] The Amazon Rainforest is estimated to be around 100 million years old (Amazonia, p.1)
[54] The Brazilian Amazon area is known as the *Legal Amazon.* It refers to the geographic division of Brazil, containing all of its territory in the Amazon Basin: made up by all or part of 9 states Acre, Amapá, Amazonas, Maranhao, Mato Grosso, Pará, Rondônia, Roraima and Tocantins (Norad 2010:15).

considered possible only as long as REDD respects the indigenous peoples- and local communities rights and ensure (Accra Cacus, 2009):

- *the free, prior and informed consent of indigenous peoples and local communities to any activity that has an impact on them; consultation is not a substitute for consent,*
- *the full and effective participation of indigenous peoples and local communities throughout the entire REDD process, which includes design, planning, implementation and monitoring,*
- *protection of secure rights to lands, resources and territories pertaining to indigenous peoples and local communities,*
- *an accessible, independent and transparent complaints mechanism providing timely redress for adverse impacts of REDD.*

As a scheme which will clearly affect people's livelihoods, micro-level REDD programs will have many impacts (both positive and negative) on communities living in and around forests. Public available information serves as an important tool in stimulating communities in or around forest areas to provide input, and may even secure the indigenous peoples` control in decision-making processes. Indeed, without sufficient information, it is difficult for communities to fully participate in any decision-making process.

4.2 Explaining Amazon Deforestation; Macro-and Microeconomic Variables

Deforestation in the Amazon has occurred since European settlers arrived in Brazil; however, the intensity of deforestation has increased dramatically during the last few decades. Estimations show that 60% of Brazil's current GHG emissions are directly linked to the deforestation and burning[55] of trees. The reason behind this occurrence is, not surprisingly, embedded in the cultural and economic logic of farmers who seek to extract maximum profit from the forest lands as quickly as possible. Furthermore, deforestation is explained by micro- and macro-economic variables. Hence, evidently the Brazilian deforestation-trends are strongly correlated with the country`s economic level; the decline in deforestation from 1988-1991 nicely matched the economic slowdown during the same period, while the rocketing rate of deforestation from 1993-1998 paralleled Brazil's period of rapid economic growth. During the 6 year period between year 2000 and 2006, *Brazil lost nearly 150,000*

[55] Fire is certainly the quickest and cheapest way to open up new agricultural areas.

square kilometers of forest—an area larger than Greece (Butler, 2010). The increase in international prices on agricultural and livestock (beef and soybeans) commodities serve as a macroeconomic factor behind the clearing of the rainforest. Concerned about the increasing deforestation in the Amazon, and with the aim of discouraging illegal deforestation, the Brazilian government approved the *Plan of Action for the Prevention and Control of Deforestation in the Legal Amazon* (PPCDAM[56]) in 2004. The deforestation rate fell with nearly 75% during the 2005-2009 period, partly explained the PPCDAM announcement in addition to improved and more extensive Brazilian technological satellite monitoring[57]. The unusually low forest clearing during 2008-2009 must also be viewed in light of the global financial crisis, which reduced the overall demand and deflated prices on agricultural goods. However, in 2010, rising employment and strong domestic demand pushed inflation to nearly 6%, leading the central bank to increase interest rates and the government to cut in 2011 spending. The experienced economic boom and high interest rates have attracted foreign currency inflows that have driven up the value of the currency by nearly 40% since the start of 2009. In an effort to limit the appreciation, the government has increased dollar reserves and capital controls. The increased demand for soy- and meat products has yet again increased the deforestation rates with 24% between August 2010 and April 2011, over the same time frame a year earlier. The biggest rise was in the state of Mato Grosso[58], in the Center-West region, where most of Brazil's soybeans and cattle production take place. Besides that increased demand for agricultural products serve as an incentive for farmers to expand their production, and hence clear more of their land, another factor behind the rise in deforestation is the discussion on the Brazilian Government easing its existing command- and control regulation under Brazil`s 75-year old *Forest Code*[59] (Shueneman, 2011). Currently, an estimated 20% of the Amazon is lost due to deforestation (Börner and Wunder, 2011:497). The deforestation dynamic is strongly dependent on the potential returns from agricultural land use. Generally, five important causes are mentioned in the literature when explaining the

[56] The PPCDAM deals with questions concerning*: territorial and land tenure organization; monitoring and environmental control; and fostering sustainable productive activities* (Norad, 2010:15).
[57] The National Institute for Space Research (INPE) developed the additional high-tech monitoring program; DETER, to detect illegal deforestation. All information regarding deforestation, including all satellite data, gathered by the INEP is available on their website.
[58] Mato Grosso means thick forests.
[59] The Brazilian Forest Code is a law on forest protection, specifying how much land farmers are allowed to clear, and has clearly been revisited several times since its establishment. The easing of this law in 2010, sent the message that profiting from deforestation would be amnestied. Furthermore, commitments by the national government to secure a long-term sustainable forest policy can hence be affected in the short term due to the uncertainties regarding the future of the Forest Code (Shueneman, 2011).

background for deforestation in Brazil. These causes include activities promoting rapid growth of agribusiness (particularly soya-bean cultivation), expansion and modernization of traditional cattle ranching, subsistence farming, logging, hydroelectric projects and mining activities (which have been essential for Brazil`s economic development), and road infrastructure. As documented above, agribusiness expansion helps create economic growth and with it increased deforestation, but it also tends to concentrate incomes. Accordingly the landowners with large-scale production gain from the increased demand, the indigenous and landless are not part of the income boom. Cattle ranching demands extensive land surface and creates few jobs, which also leads to forest conversion. Peasant agriculture creates jobs and local income. But the downside is that many areas cleared in this process loose their fertility after few years of subsistence farming, creating migration and illegal land-grabbing. Indigenous and community lands help to protect forests, but generate few opportunities for livelihoods improvement. Logging is the main driver of forest degradation and illegal logging is difficult to detect in the transboundary settings of the Amazon. Building materials, the need for fuel-wood and subsistence agriculture in mining activities also contributes to deforestation. Furthermore, all the above mentioned causes of deforestation demands access and thus road infrastructure[60], which is another major factor behind increased deforestation rates and pollution in the Amazon. There are several pros and cons related to the building of infrastructure in the rainforest. On the one hand, building highways contribute to the destroying the forest and extinction of spices. On the other hand, for the Amazon people it may serve as opportunity for a better life (with easier means of transportation and the arrival of food and medication) (Norad, 2011:20-23).

Since the 1990`s, soybean production – known as Brazil`s hottest cash crop – have become one of the most important contributors to deforestation in the Brazilian Amazon. During recent years the soybean cultivation has expanded rapidly due to improved infrastructure in the region and rising demand for vegetable oils for food, industrial uses, and biodiesel production. Presently Brazil is the leading producer of soybean in South-America, and the world`s largest exporter of soy (Norad, 2010:22). Much of Brazil's soy is bought by American-based companies like Cargill or Archer Daniels Midland and is used to feed cows as far away as Europe and China. The impact of soy production on the rainforest is generally

[60] Like the Trans-Amazonian Highway. The construction of this highway increased the deforestation rates to the highest levels ever experienced in Brazil (Norad, 2011:23).

considered indirect. Philip Fearnside, member of Brazil's National Institute for Amazonian Research in Manaus, explains (quote, Butler, 2010):

> *Soybean farms cause some forest clearing directly. But they have a much greater impact on deforestation by consuming cleared land, savanna, and transitional forests, thereby pushing ranchers and slash-and-burn farmers ever deeper into the forest frontier. Soybean farming also provides a key economic and political impetus for new highways and infrastructure projects, which accelerate deforestation by other actors*.

One important spur to the soybean boom is due to the emergence of a middle class in China, much of whose newly disposable income has been spent on a richer, more varied diet. During the past decade, China has been transformed from a net exporter of soybeans to the world's largest importer of whole soybeans as well as oil and meal byproducts. Brazilian law permits landowners to raze trees and brush and plant crops on 20% of their jungle holdings, but that figure rises to 50% in transitional areas and 65% in savannas. Beyond the air-pollution resulting from jungle burning, the rapid expansion of soybean production has also contributed to pollution of waters in the Amazon, threatening isolated tribes. On the 24th of July, 2006, the originally two year initiative, known as the Soy Moratorium, was established by ABIOVE (Brazilian Vegetable Oil Industry Association) and ANEC (Brazilian Grain Exporters Association), and their respective member companies, pledging not to trade soy originated after that date in deforested areas within the Amazon Biome. The memorandum has been extended every year since its establishment. The soy moratorium was a direct result of a 2006 Greenpeace campaign, which linked animal feed used by fast food chains, supermarkets, and retailers in Europe to deforestation in the Brazilian Amazon. The main target – McDonalds – immediately demanded its suppliers to provide deforestation-free soy, presenting the industry with a dilemma: move towards environmental respectability, or lose one of its biggest and most influential customers. The largest soy suppliers chose the former, agreeing to a moratorium on soy grown on newly deforested lands that has changed the way commodities are produced in the Amazon. Several soy producers in the region have since registered their holdings in order to sell their product to major crushers and traders. Registered properties are monitored via satellite, airplane flyovers, and on-the-ground visits. But the challenge connected to guaranteeing that Brazilian soya and cattle trader's products are deforestation free still remains until the government, farmers and traders work together to ensure that *all* farms in the Amazon-region are publicly registered.

4.3 The Amazon – *A Climate Change Victim and Villain*?

On the one hand, the forests may be portrayed as victims because of the effects of global warming on the regions which destroys the forest lands and with it both loss of biodiversity and local communities. On the other hand, forests may be considered as villains because of their contribution to the GHG emissions due to the cutting and burning of trees. As we have seen, deforestation, despite all its negative impacts, brings economic benefits. Reducing deforestation and preventing land use change means sacrificing these benefits, but only in the short-run. The challenge of achieving both economic- and sustainable development, and biodiversity conservation goals in the transboundary setting of the Amazon, requires Brazil to incur the opportunity cost – i.e. the cost of forgoing the economic benefits – and the engagement and support of local communities. Elinor Ostrom (2010) states that such support will only be secured by addressing livelihood development goals, which include not only income improvement, but also the recognition of local identity, traditional knowledge rights, effective participation, and secure rights over land and natural resources and their sustainable use. With this in mind, it is considered vital that REDD discussions not only focus on forests, but also on rights issues, governance and justice (RFN, 2011:2). Obviously a key challenge still remains; sufficient political commitment to ensure the implementation of relevant safeguards

4.4 The Amazon Fund – Currently the World`s Largest National REDD Initiative

According to McKinsey`s national GHG abatement study (2010), Brazil is the 4$^{th}$ largest GHG emitter in the world with deforestation accounting for approximately 18% of the global GHG emissions. Domestically, 55% of Brazil`s current emissions are directly linked to deforestation. Hence, Brazil`s largest opportunity to reduce its GHG emissions is through its Forestry sector, aimed at eliminating deforestation and promoting reforestation of degraded land. In December 2008, the Brazilian government made its first long-term climate change commitment through the establishment of the National Climate Change Plan which states a gradually decrease of the Amazon deforestation until completely elimination in 2040 (Ministry of the Environment, 2008). Under the plan, deforestation is aimed at being reduced by 70% by 2018 over the average observed between 1996 and 2006. If this goal is met, estimations show an avoidance of 4.8 billion tons of GHG emissions. To support this goal,

Brazil established the Amazon Fund. According to the Brazilian National Development Bank (BNDES, 2009:20) the Amazon Funds main objective is

> *… to provide support to projects to prevent, monitor and combat deforestation, as well as for the conservation and sustainable use of forests in the Amazon Biome.*

The Fund is a national initiative on REDD and acts as an instrument designed for foreign governments, NGOs[61] and companies to donate money to help pay for the protection of the rainforest and consequently fight global warming. Payments to the fund are performance-related through satellite monitoring[62] – performance is linked directly to results, i.e. emission trends – to provide an economic incentive for reducing deforestation. Payments to the Fund in a particular year will depend on the difference between emissions from deforestation in the previous year and the reference level. Thus, if emissions in a particular year are higher than the reference level[63], no payment will be made to the Fund the following year. In other words, financial contributions are only received when emissions in the Amazon-area are actually reduced. The calculation of this carbon performance measure is conducted by a Technical Committee (CTFA) consisting of scientific experts in the field. Moreover, the guidelines of the Amazon Fund are established by a *Guidance Committee* (COFA[64]), led by the Brazilian Minister of the Environment. COFA is also in charge of monitoring results, ensuring the reliability of the Funds projects, guaranteeing that the use of resources meets the goals, commitments and policies of PPCDAM in addition to the strategic programs within the *Sustainable Amazon Plan* (PAS) (BNDES, 2010:17). However, for the different components of this formal structure to be able to reach the objectives of the Fund, the following requirements are sought after in the process of approving various projects:

- *Management of public forests and protected areas;*
- *Environmental control, monitoring and surveillance;*
- *Sustainable forest management;*
- *Economic activities developed from sustainable use of the forest;*
- *Ecological and economic zoning, land-use planning and land-title regularization;*
- *Conservation and sustainable use of biodiversity; and*

[61] Non-governmental organizations (NGOs) have an important role as a watchdog and provider of information vis-à-vis the population and the authorities in both donor and recipient countries (Solheim, 2006).

[62] *Monitoring refers to the collection of data and information at a national level, and performance of the necessary calculations for estimating emission reductions or enhancement of carbon stocks (and their associated uncertainties) against a reference level* (Meridan Institute, 2008).

[63] The reference level is updated every five years.

[64] According to BNDES (2010:18) *COFA is a tripartite committee formed by the federal government, state governments and civil society*.

- *Recovery of deforested areas.*

In essence, the Amazon Fund supports projects that are aimed at reducing deforestation and enhancing biodiversity through mechanisms that strengthen sub-national institutions, promote reforestation, and - sustainable forest management. Furthermore, any funded project has to comply with Brazil's National Plan on Climate Change and be coherent with PAS, State Plans to Combat Deforestation, PPCDAM, COFA's guidelines and criteria, and the Brazilian Development Bank`s (BNDES') operational policies (BNDES, 2009:26). To this date[65], the Amazon Fund has approved 19 projects which include a total contribution[66] of USD 140 million (The Amazon Fund, 2011).

The managing of the Fund is appointed to BNDES. As the term *management* imply, the Bank`s responsibility includes analyzing, approving and contracting of projects, as well as supervising, monitoring and rendering accounts. In addition, the Bank must maintain proceeds derived from donations separate in its accounting books. For every contribution to the Amazon Fund, the Bank issues Certificates equivalent to the tons of carbon that correspond to the amount of financial contribution to the Fund. These certificates are nominal, non-transferable and do not generate rights or credit of any nature. In 2009, the Amazon Fund's main challenges were to set up a structure, to create processes and procedures, and to define criteria and forms to operate the Fund. To expand BNDES` coverage and strengthen its institutional environmental performance, the BNDES' Environmental Division (AMA/DEFAM) was established. The Division manages the Amazon Fund as well as supplying the Bank with necessary tools to fulfill its environmental agenda (BNDES, 2010:18). So far, both the Governments of Norway and recently Germany have compromised resources to the Amazon Fund, even though the majority of resources come directly from BNDES budget.

Moreover, the Amazon Fund is not considered Brazil`s national REDD scheme, but rather as a first incarnation of it. Brazil`s final REDD scheme will have to address the need for financial support for forest conservation beyond the ten year deforestation reduction period covered by the Amazon Fund. It should also need to link into any finally agreed UNFCCC framework.

[65] August, 2011.

[66] Up to 20% of the Amazon Fund`s resources can be used to support the development of systems for monitoring and control of deforestation in other Brazilian biomes and tropical countries (The Amazon Fund, 2010:20).

As in every innovation, the Amazon Fund faces several challenges. Clearly, building new structures takes time, and among the main concerns directed towards the Fund is its slow implementation of projects. There is a continuous debate regarding BNDES transparency and credibility to this date. During the Amazon Fund seminar in Oslo in 2010, one of the four invited experts, Lars Løvold (quoted in Leira, 2010:1), brought to light the following concern regarding the Funds lack of transparency;

> *We know the steering committee (COFA) established guidelines and criteria's in 2008. But as far as we know, there is no way to check if these criteria are being followed by the BNDES. This means the criteria can be followed 100% or 0 %. We simply do not know. Our partners in Brazil have described the internal process for analyzing applications as a black hole* (citation in Leira, 2010:1).

Besides the remaining challenges concerning the success of the Amazon Fund, it is clear that the Fund alone cannot cure all ills. Many studies and reports – e.g. the McKinsey report (2007), the Eliasch Review (2008) and the Stern Review (2006) – point out the need for a green economy in *all* regions of the planet. In short, what becomes clear from the experience of the Amazon Fund, so far, is that to support low carbon development, national climate institutions need to be truly developmental, and not simply mechanisms to account for climate finance. Establishing meaningful, national low carbon growth and development plans require new institutional arrangements characterized by transparency and strong political and economic leadership.

4.5 Bilateral Climate Change Cooperation: NICFI and the Amazon Fund

In addition to both Norway and Brazil being parties of the UNFCCC, the Convention on Biodiversity and the Kyoto protocol, cooperation between the two countries go even further. During the last 170 years, bilateral trade between Norway and Brazil has indeed secured a shared and mutually strong relationship. Over the past decade, trading between the two countries has risen with an estimated 200%. Statoil and Hydro are heavily engaged in the oil, gas and aluminum industries, and the Norwegian maritime sector has a strong presence in Brazil as well. Trailing only the EU and the US, Brazil is currently one of the countries where Norway has its largest investments abroad[67], making Norway the seventh largest foreign investor in Brazil. Additionally, Norway`s GPFG investments in Brazil is larger than in any of the other developing economies. Moreover, climate change and other environmental policy

[67] Most of Norway`s international investments is in the EU and the US (Norwegian Ministry of Foreign Affairs, 2011:5).

issues are given essential political attention in both countries. Both Norway and Brazil are major energy nations[68], aside being valuable economic partners[69], they are confronted with the same environmental challenges concerning GHG emissions from the extraction of oil and gas and within R&D[70]; regarding developing renewable and sustainable energy sources. Unlike other rapidly developing countries, Brazil is unique in having rather low current and projected emissions of GHGs from energy use (Norwegian Ministry of Foreign Affairs, 2011:4-5). Furthermore, holding one-third of the world's remaining rainforests within its borders, the Brazilian authorities have taken active steps to preserve the Amazon rainforest. Efforts – i.e. the establishment of the Amazon Fund – have resulted in reductions in the deforestation rate in the rainforest. As one of the first countries to address the question concerning emissions responsibility, Brazil has since it hosted the Rio climate talks in 1992 had a key role in international climate change negotiations. Accordingly, Norway considers Brazil a strategic partner within promoting environmental and sustainable development, reducing poverty and maintaining biodiversity. To demonstrate this, Norway was the first country to support [71] Brazil`s efforts in REDD[72] through its contribution to the Amazon Fund. Norway's success in reaching its national environmental targets is dependent on international environmental cooperation. The Norwegian-Brazilian climate and forest cooperation is an important element of the NICFI, with the contribution to the Amazon Fund serving as the core of this collaboration. This partnership is an opportunity to contribute to REDD in a country that has already proven its ability to reduce such emissions significantly, in addition to securing biodiversity. The Initiatives support is limited to the use of Brazilian services paid for by the Fund. Given a performance based reduction in the deforestation rate, Norway plans to provide up to USD 1 billion by 2015 for reducing deforestation in the Brazilian part of the Amazon region. The Norwegian Ministry of Environment (2011) states that Norway`s first commitment to the Fund, based on results achieved in 2006-2007, was NOK 100 million. In 2007 and 2008 further contributions to the fund amounted to NOK 600 million. In 2009

[68] In contrast to Norway, Brazil is a relative new oil and gas nation.
[69] As an initiative to expand cooperation with Brazil in a sustainable manner, the Government of Norway launched its long-term *Brazil strategy* earlier this year. The Strategy involves strengthening the mutual enrichment, economic growth and development within business-, climate change and environment-, indigenous peoples and human rights-, and culture and knowledge growth between the two countries (Ministry of Foreign Affairs, 2011:4).
[70] Research & Development.
[71] As defined in Norad`s evaluation report (13/2010:74): *Support refers to financial contributions and policy and technical advice conveyed trough the different channels and mechanisms that ultimately target national REDD efforts.*
[72] Tanzania and Brazil were the first countries to sign a bilateral agreement and receive support from the Government of Norway to develop a REDD scheme.

Norway committed to make further donations of up to NOK 750 million in addition to NOK 750 million in 2011. Approximately NOK 123 million, of the total NOK 750 million, was transferred to the Amazon Fund. In 2010 the Amazon Fund was granted the result based amount of NOK 850 million. Further donations are still to be considered based on the 2011 accomplishments in reducing deforestation and forest degradation. Donations by the Norwegian Government are usually made every six months, at the request of BNDES, based on the Funds financial needs or due to accomplished GHG reduction in the forestry sector (Norad, 2010:40). All the transferred payments from NICFI are based on BNDES verifications concerning Brazilian accomplishments in REDD. Besides the Norwegian Initiative`s support to the Amazon Fund, the Norwegian-Brazilian cooperation incorporates dialogue on development, environment and forest policy, which includes talks on securing human- and indigenous peoples` rights (Norad, 2010:44). However, several areas (e.g. structural, bureaucratic and operational) challenge the effectiveness of the bilateral REDD-agreement between the two countries. This will be further commented in the following sections.

As noted in Zadek, Forstater and Polocow (2010:12):

> *While the Amazon Fund has been able to get started quickly, compared with other funds, the actual rate at which money is being invested on the ground is much slower than the rate that it is being 'earned' through reductions in deforestation within the agreement with Norway.*

5.0 Evaluation: Connecting Empirics and Theory

5.1 The Amazon Rainforest Management – A Classic CPR Dilemma

Forests may be held under public, private and common ownership or under open access regimes. Ownership of forest areas is generally understood as individual`s, governmental or a group`s right to claim land tenure and control over land in the specific forest. Owners of the CPR include anyone who has land-based activities in rural regions – farmers, ranchers, loggers, rubber tappers, private businesses etc. – and incorporates implications for the objectives of land use and its resources, management policies and protection of the forests. For example, Mendelsohn (1994) emphasizes the importance of secure property rights, in addition to profitable sustainable forest management. His studies proved that poorly-defined property rights encourage deforestation, consistent with Ostrom`s first principle of *Clearly defined boundaries and access rights to the resource* for long enduring CPR- management. Furthermore, land ownership is a crucial issue in terms of poverty reduction, food sovereignty and addressing deforestation (Siry et al, 2009:2-4). Indeed, as Ostrom emphasizes; a critical aspect for how forests should be managed and who benefits, is who has the rights to use and manage the forests, as these are not necessarily the same as ownership rights. In the following I will present a synopsis of the past and present rainforest management in Brazil, serving as a background for my discussion in the next section.

Brazil is known for having one of the most concentrated distributions of land in the world. The skewed land distribution is mainly explained by historical, economic and structural factors. Dating back to the Portuguese colonization 500 years ago, the Latifundios, meaning the occurrence of relative few large commercial land owners, has existed. The large landowners are notorious for gathering more land by confiscating the properties of small isolated farm families. The evictions are often violent, including torture and murder. Such violence has increased the occurrence of landless families migrating to the Brazilian urban areas, creating slums and crime due to poverty and unemployment. Indeed, millions of acres of land have been cleared simply to claim ownership of them. The large landowners or ranchers (called Fazendeiros) serve as a politically powerful force in Brazil. Several are congressmen, senators, as well as businessmen. A well organized constituency of right-wing ranchers formed the Uniao Democratica Ruralista (UDR) – the Democratic Association of Ruralists – in 1985 to plan and promote their agenda in the country. The organization defends private property and landowners interests, challenging the rights of landless and small scale

farmers and making it even tougher for their voices to be heard. Later in 1985 the landless organized and formed, what is often referred to as the biggest social movement of the world, the *Movimento dos Sem Terra* (MST) – the Brazilian Landless Workers Movement (MST, 2003:1). The establishment of both the UDR and MST happened in the wake of the ongoing Land Reform policy in the country. From the 1960's until today, Land Reform, aimed at distributing plots of land to landless families, has been at the policy agenda of the Brazilian government and is associated as one of the causes to the military coup in 1964 (Martins, 2006). Indeed, most rural people lacked legal forest property prior to the 1990s when reforms created new types of forest property and granted forest management rights. These reforms were in part responses to the grassroots pressure from rural people struggling to maintain control over forest resources. Moreover, clearing of land for cattle ranching was, and still is, a major challenge. Due to the ranch-based economies degradation of the soils, 50% of all the lands cleared for ranching have been abandoned (owned but unproductive). However, it is possible to revitalize degraded land, given the right recourses, such as technology and knowledge. Accordingly, the cost to restore degraded land in the Amazon is estimated at USD 110 in fertilizer per acre. A cost of USD 3000 is estimated to *get the forest back* (i.e. reforestation) (Hecht & Cockburn, 1990:178). For such initiatives to be designed in developing countries, it is obviously an important factor that they receive financial support, from NCFI and other funding mechanisms.

The forest management in Brazil has presented an enormous obstacle for the authorities in their efforts to prevent illegal deforestation, and the challenges still remain. In search for a better life, access of land and peace, landless people are pushed into the unclaimed, open access parts of the Amazon, and hence contribute to small-scale deforestation. In 2009, as an attempt to bring order to the land disputes and deforestation, the Brazilian Government established a new controversial environmental law – the provincial measure 458[73] – stating that small landowners who can prove they occupied lands before December 2004 will be handed small pieces of land for free, while large areas will be sold off at reduced rates. In other words, the law transfers public land to private ownerships. Even though commercial production in privately owned forests usually are considered to be more productive than production in publicly owned lands, private forest management is frequently observed as not taking social responsibility and exercising environmental standards in a lesser extent. Public forest management, at least in principle, aspires to take the environmental

[73] The law covers an area roughly the size of France (Siry et al., 2009: 5).

services and social objectives into account resulting in forest lands to be protected areas to avoid exploitation. However, several studies concerning the status of forest resources suggest that public forest management generally is not efficient, due to unbalanced political resource allocation, overexploitation and budgetary and personnel constraints (Siry et al, 2009: 5-7). Indeed, forest lands are often technically state owned but in reality open-access and susceptible to conflict, contested claims and deforestation. The unclaimed parts of the forests (i.e. the public property forests) are also considered[74] to suffer from uncontrolled overexploitation, due to the lack of governance. As mentioned earlier, a public property forests, characterized by exclusion difficulties, is considered to encourage individuals to free-ride on others, resulting in under-provision or degradation of the CPR (Ostrom, 1999). Several economists (e.g. North, 1990 or Anderson and Hill, 1977) have argued that property rights emerge in response to conflict over resource use and conflicting claims over resources, and that well-defined property rights help to promote a more efficient use of resources and more responsible long-term care of the resource base. Nevertheless, Ostrom (2010) finds that given that groups have experience in cooperating, share common understandings, trust one another, and invest time and labor to joint management, community managed forests can be as effective or even more than private or public ownership. In line with Ostrom`s thoughts, recent studies (e.g. Berkes, 2007) of successful forest governance points to management at multiple levels. Processes, dealing across levels of governance, where local-, regional-, and national-level entities compete for influence in goals or understanding, can increase the possibility of balanced and nuanced decision making. As seen in the case of Brazilian forest management, the aspect of justice in multi-level decision processes is not necessarily consistent, because some have more political power than others and, thus, can achieve more advantages.

Estimations from 2006 regarding forest management in the Brazilian part of the Amazon showed that 25% of land is in private farms, 35% in protected areas (PAs)[75] and indigenous lands, and the remaining 40% in public, open access land[76]. However, there are also extensive areas of forest land in the region occupied by rural people but without formal rights and thus difficult to quantify. Indeed, several strategies have been used to counter the

[74] See Hardin (1968) or Gordon (1959).
[75] Protected Areas (PA) are defined as parts of an area of land and/or sea, *managed according to legal provisions or other equally effective means, with the purpose of conserving nature and related cultural values.* Forest Protected Area is a subset of all protected areas (as defined above), that includes a substantial amount of forest. This may be the whole or a part of a protected area. Govermental Protected Areas – i.e. national parks and reserves – is a strategy to preserve tropical forests (Norad, 2010:9).
[76] No ownership rights, i.e. non-excludable areas.

destruction of the rainforest. Protected areas are, however, the cornerstones of most national and international conservation strategies (Börner & Wunder, 2008). And Brazil is no exception. The Amazon Protected Areas Program (ARPA) was established in 2002, and is today the world`s largest program for PAs in addition to being *a major tropical biodiversity conservation project*. Its objective is to secure the long-time protection of the Amazon rainforest through strict preservation-areas and sustainable use reserves. Indeed, by 2008, ARPA had established 62 new PAs. In December 2010, state PAs of the Legal Amazon (PALA) amounted for 43, 9% of the region. The numbers represents an incredible increase in PAs after the establishment of the Protected Areas Law Framework in 2000 (Norad, 2010:28). One of the sub-state REDD-project initiatives, and probably the most celebrated[77] example in Brazil, is the Juma Sustainable Development Reserve Project for Reducing Greenhouse Gas Emissions from Deforestation[78]. The Juma Project was created in 2007 as part of a broader initiative focused on Payment for Environmental Services (PES) and hence has both social and economic policies that help to preserve the forest[79] (Costenbader, 2011:20-21). According to one of the latest social inventories, taken in 2008, an estimated amount of 339 families' live in the 35 communities situated within the borders of Juma Reserve and its surrounding area. Most of them are poor, lacking both personal papers and land titles, and they survive through fruit production, fishing and hunting. Furthermore, there is no public healthcare other than the informal assistance between members of the community when illness occurs. The area clearly lacks both sufficient Human and Physical capital for poverty reduction and forest preservation. As I will illustrate later in my thesis, Juma is just one out of several examples of PES-programs being implemented in Brazilian communities. Furthermore, even though some forest conservation units are very successful in protecting local forests (such as the Tikal National Park in Guatemala or the Machadinho d'Oeste reserves in Rondônia), in truth, many of the PAs exist only on paper (Ostrom, 2008). These so-called *paper parks* lack management plans and management councils, and hence effective monitoring and government control over their boundaries, resulting in the occurrence of illegal land-grabbing, forest degradation and deforestation (Ostrom and Nagendra, 2006:1). To reduce deforestation within these areas, tenure regularization is therefore fundamental. Within the Juma project site there are approximately twenty private land title claims in a total of 15,038 hectares. A large number of

[77] Because it was *the first REDD-project worldwide to receive the Gold rating from the Climate, Community and Biodiversity Alliance (CCBA) for its social and environmental benefits beyond carbon sequestration* (Costenbader, 2011:20).
[78] Hereafter referred to as the Juma Project.
[79] Other ongoing sub-national programs are: Noroeste MT and Suruì (Norad, 2010:36).

these properties are illegally claimed. Moreover, between 1998 and 2009 12,204 square kilometers of forest within PAs was cleared. Through a statistical comparison of deforestation rates and Qualitative Comparative Analysis[80] Porter-Bolland et al. (2011:6-7) found that the main reasons for the occurrence of deforestation in PAs were due to the micro-economic variables; agricultural expansion and population growth, infrastructure development and natural resource use or timber exploitation. The public forest areas in Brazil are under identification and registration by the Brazilian Forest Service. This is done as part of the law on Public Forest Management established in 2006. Today around 60% of the Brazilian public forest areas are converted to *community forests management* (CFM) – local communities are given ownership rights through governmental establishment of indigenous reserves, extractive reserves or areas with communal forest resource use – as a way to enhance forest ecosystem stability and rural livelihoods (Norad, 2010). Indeed, deforestation occurs in CFM as well as in PAs. The primary factors behind deforestation in CFM are insufficient or lack of sustainable development policies, population pressure and agricultural expansion. However, the deforestation rates in CFM areas are comparatively lower than what is observed in strictly PAs[81], thus indicating that indigenous reserves may have a larger degree of effectiveness (i.e. reduced deforestation). One of the reasons behind this finding is because of the community member's commitments to monitor each other's behavior and impose sanctions on those who display inappropriate behaviors (Porter-Bolland et al, 2011:7). According to Manuel Guariguata, Senior Scientist with the Center for International Forestry Research (CIFOR) and one of Porter-Bolland`s co-researcher (quoted in Cooney, 2011:1-2):

> *Our findings suggest that a forest put away behind a fence and designated "protected' doesn't necessarily guarantee that canopy cover will be maintained over the long term compared to forests managed by local communities – in fact they lose much more…*
> *...We are not arguing that parks in tropical forested areas are useless. Instead we argue that community-managed forests are a key part of the overall forest conservation package.*

As shown, the Brazilian government has developed several social, legal and economic initiatives in the Amazon to help protect its forest lands. Although many elements are yet to be finalized at the time of writing, the Brazilian REDD project has a relatively solid

[80] Their meta-analysis is based on published empirical case studies accounting for change in the forest cover in developing countries. The cases included 40 PAs and 33 CFM programs. See Porter-Bolland et al (2011): *Community managed forests and forest protected areas: An assessment of their conservation effectiveness across the tropics*.
[81] Strictly Protected Forest Areas are considered as forests fenced in behind *no- trespassing*.

framework with a strong capacity. However, challenges and conflicts such as ownership- and perceived value of forests still remain. This complicates the process of making effective, efficient, and just decisions about the management and use of forests. With the above mentioned in mind, the Brazilian Amazon Rainforest serves as a classic CPR dilemma.

5.2 The effects of NCFI in Brazil – *Think globally, but act locally*

The layout of NCFIs strategies in dealing with technical-, social- and political challenges in REDD+ is the following (Fosse, 2009, p.8):

1. *Supporting the establishment of Monitoring, Reporting and Verification (MVR) systems,*
2. *Playing part in establishing a robust, effective and flexible international support architecture,*
3. *Systematic co-operation with NGOs, and relevant research institutions*[82]*,*
4. *Requiring political commitment and national REDD strategies,*
5. *Capacity building in the recipient country*
6. *Capacity building at the international level,*
7. *Support based on performance ASAP*
8. *Ensuring that contributions have catalytic effects, and*
9. *Systematic evaluation.*

I find the above formulations to be both general and extensive. However, I interpret the reason behind this architectural generality as being due to no *one-size-fits-all* policy. Accordingly, NCFIs implementation of strategies will differ depending on its initial focus[83]. Thus, strategies that will encourage emission reductions in countries like Brazil and Indonesia, where profitable agricultural expansion and cattle ranching are among the main drivers of deforestation, will differ greatly from what will work in Africa and Asia, where logging is among the main drivers (Ostrom, 2010). But, what is made evident by the above strategies, is the Initiative`s multi-scale approach to coping with climate change and other collective action problems. Consequently, the Initiative supports REDD-programs at a global level – through multilateral channels –, at national levels – trough bilateral agreements – and at regional levels – through NGO`s and so-called *think-tanks*. Globally, NICFI works towards

[82] E.g. the Rainforest Foundation Norway (RFN).
[83] E.g. if the focus is on *capacity building in the recipient country*, in general, national REDD incentives and constraints will naturally derive from the ways in which institutional, organizational and individual perspectives are framed at their respective levels.

establishing an international REDD regime. Nationally, NICFI supports the establishment and implementation of national REDD schemes (phase 1-3) (Fosse, 2009:9). However, it is the latter that is of primary interest in this thesis.

Norad`s (2010) first real-time evaluation report of REDD contributions provided by Norway to Brazil, specified that the most concrete contribution made by NCFI was through the vertical allocation of financial support to the Amazon Fund. Indeed, respecting Brazilian sovereignty was a precondition for Brazilian acceptance of NCFI support. Although international donors, such as Norway, will have no direct influence over the award and use of the resources supplied, the Brazilian government has declared that the operations of the Fund will be *results based, transparent* and *independently monitored*. However, the process through which projects have been selected for approval has so far been described as a *black box* by both Brazilian and Norwegian observers (Costenbader, 2011). So, the current effect of NCFI in Brazil is understood as being mainly through its financial contribution, which in turn is used to fund sustainable forest projects[84], accepted by the Amazon Fund (World Bank, 2011).

NCFI considers two of its main challenges in Brazil to be forest governance and land tenure, in addition to ensuring local livelihoods, through safeguarding indigenous peoples` rights and interests (Fosse, 2009:6). As shown in the previous section, the traditional approach to forest conservation in Brazil has been through enforced protection by the state powers. A major challenge lies in the fact that, under Brazilian law, much of the Amazon is essentially an open access resource, so there is little incentive for trespassers, farmers, or developers to use forest lands and its resources in a sustainable manner. Moreover, because no institutions respond to signals from open access CPRs, and thereby no negative or stabilizing feedbacks exist to regulate its use, the consequence, according to Ostrom (2005), is that open-access use will be characterized by vicious circles. In these vicious circles or deforestation traps the reduction of rainforest leads to more intensified use of its lands, which further leads to even more overexploitation. Thus, usual forest practice in Brazil has indeed been characterized by such deforestation traps through the clearing of land for agriculture and cattle ranches, and then the moving on to new forest areas when the land is degraded, making huge areas of degraded land unproductive[85]. Another variable behind the lack of sustainable forest

[84] Including efforts to prevent, monitor and fight deforestation (World Bank, 2011).

[85] Degraded land can be considered as a *poverty-trap*, the reason for this that degraded areas can not ensure food supply or production for income. However, increased productivity in degraded lands is possible given the right

management is, however, connected to federal laws concerning land management (e.g. the Forest Code). Indeed, to this date, developers can acquire rights to unoccupied forest land simply by using it for at least one year and a day – typically by burning the native forest and establishing some cattle on the land. An essential factor for the success of NCFI funding`s is the Amazon Funds approval of sustainable community project plans. Furthermore, the underlying challenge, regarding the success of such sub-national REDD- programs, concerns the Funds ability to establish bottom-up agreements, due to pro-forest community contracts demanding certainty about who owns the land. As in the case of forest-management in Brazil, most tropical forests in developing countries have multiple owners and users who claim property rights to forest resources. It is both time-consuming and difficult to sort out property rights to forests lands, especially when existing laws and customary norms allocate conflicting rights to owners and users. The predicament for donation-initiatives concerns with who they shall negotiate for preservation of forest-lands. Clearly, before BNDES, as the manager of the recourses given by the Norwegian Initiative, can approve any local projects, defined property rights must be present. Moreover, biodiversity conservation, such as the protection of the Amazon, can be treated as a commons problem, or more specifically as a multilevel commons problem. As a multilevel commons, the ownership and control of the Amazon is complex. Accordingly, local capacities to mobilize consensus, political will and good governance may be limited. As emphasized above, some forest lands are in public, open access areas under governmental ownership, some are under control of the community and some are in private ownership. In a multilevel[86] conservation of the rainforest, deliberation requires the input and knowledge of players at different levels, from local to international. Local and indigenous knowledge can complement science not only in terms of adding to the range of information available but also in terms of scale, giving a more complete accounting at the various levels of analysis from local to global (Ostrom, 2010). Moreover, initiatives to reduce GHG emissions will depend on rural people to manage forest resources. Local participation with the priorities of farmers, town councils, businesses, local media and micro-entrepreneurs should be the starting point for the success of effective REDD-pilot agreements (Costenbader, 2011). But, how far has *the wagon of salvation*[87] really come in Brazil?

technology and knowledge. One solution to the predicament of unproductive land may be to locate cattle pasture on already cleared areas, and thus reduce the need for additional deforestation.

[86] I.e. *think global, but act local.*

[87] I.e. sub-national REDD initiatives

5.2.1 Community Forest Management (CFM) – A self-governed forest

The approach of Participatory Forest Management (PFM)[88] is considered as a decentralized forest governance model; whereby the government devolve its management authority to district levels, giving communities the chance to participate in designing their own sub-national REDD schemes. Indeed, through working with local leaders the PFM approach usually gain local trust and legitimacy. A PFM strategy can generally be divided into two social forestry approaches: Community Forest Management (CFM) and Joint Forest Management (JFM). CFM programs usually take place on areas where the community owns and manage land given to them by the state. JFM typically occur in government owned areas where rural people are given permission to live and benefit from the forest resources, and is thus a collaborative approach (Costenbader, 2011). In this context, CFM is perceived to have essential comparative advantages over JFMs, due to the communities' secured landholdings and forest management responsibilities. In the following I will consider such community-based commons as a complimenting policy approach to Ostrom`s framework regarding a self-governed forest.

The Amazon Fund supports projects concerning management of public forests and PAs (World Bank, 2011). But due to already mentioned challenges, such as paper parks and land conflicts, Ostrom`s perspective, regarding the long- term successful management of a CPR, such as the Amazon, is that it should neither be privatized or controlled strictly by the public sector. It should rather be managed by local users who live in and are dependent on the forests resources. In most countries there are systems under which local communities manage a share of the forest land for their own needs. Moreover, the idea behind CFM is to protect forests by transferring management responsibility to local communities (Ostrom, 2005).

Until the 1980s Brazilian policies in favor of community preservation; securing ownership rights and local livelihoods of small scale farmer`s, were almost totally absent. But due to structural and legal changes over the past years, today almost one third of the Brazilian Amazon region is under some kind of CFM[89]. Several communal programs are under development in Brazil, and some of them are currently supported as pilot projects by the Amazon Fund. The State of Acre and The Nature Conservancy (TNC) represents two, in the pool of total 19, community projects currently approved and supported by the Amazon Fund, and, hence, indirectly by NICFI (The Amazon Fund, 2011). The Fund has promised to

[88] Countries in Africa and Asia were the first to practice PFMs in the 1980`s (Costenbader, 2011).
[89] Ranging from indigenous territory, sustainable use conservation areas (extractive reserves) and rural settlement areas (Costenbader, 2011).

allocate a total of USD 33.61 million to Acre. This contribution is aimed at strengthening the monitoring institutions as well as providing incentives to preserve the forest through sustainable forestry production and reforestation (Climate Funds Update, 2011). However, the project of TNC will, according to the climate funds update (2011), receive USD 9.1 million aimed at serving as an incentive to encourage loggers, cattle ranchers and soy farmers in the States of Pará and Mato Grosso to sign up for a land registry. As noted earlier, land-registry is an important component in securing rights and promoting sustainable forest management.

There is growing evidence that varying forms of CFM have reduced or stopped deforestation (Costenbader, 2011). Thus, implemented the appropriate way, such community-based conservation management is regarded as an important policy instrument for promoting sustainable development. Indeed, because community programs regard forests as being a source of livelihood (i.e. food, medicine, housing and income), they are expected to reduce poverty and famine (Ritchie et al, 2000:5-7). Moreover, observations regarding successful community control and co-management forests preservation, has increased the overall interests in CFM as a potential national REDD mechanism. Agrawal and Angelsen[90](2008) studied how CFM can contribute to REDD+ goals. Their findings support Ostrom`s conditions (i.e. principles) for a successful self-governed CPR`s. Indeed, they found that factors associated with successful CFM included communal resource management systems such as clearly defined boundaries and membership (principle 1), equal opportunities to participate in the definition of rules (principle 2 and 3), the capacity to monitor (principle 4), and impose sanctions when rules are broken (principle 5 and 6), manageable group size—small to medium-sized groups—and group autonomy. Ostrom considers the latter as crucial for achieving trust within the user groups and thereby, realizing collective action and long-term cooperation in a self-governed forest (Ostrom & Poteete, 2004).

However, implementing CFM includes challenges such as possible risks and costs connected to receiving land holdings and management over forest resources. Indeed, studies (e.g. Agrawal & Angelsen, 2009) show that communities often receive degraded forest areas that demand resources which are often absent in poor user-groups. Furthermore, communities require start-up capital to invest in the necessary infrastructure, equipment, and to hire a forester to take on forest inventories in addition to prepare and oversee implementation of management plans. This is usually provided in the form of a project grant, and hence

[90] See Agrawal & Angelsen (2009): Using community forestry management to achieve REDD+ goals. In *Realising REDD+: National Strategy and Policy Options*; CIFOR: Bogor, Indonesia, 2009; pp. 201-211.

emphasizes the need for such projects being supported by, not only NGOs as they primarily are today, but also to a greater extent by organizations such as the Amazon Fund. Moreover, several CFM areas has difficulties in accessing markets and problems with enforcement officials which limits forest management's contribution to the community's economic development and, thus, overall self-sufficiency. Developing a communal REDD initiative will consist of two main phases; a developmental and an operational. Accordingly, focusing only on one challenge or phase will not be sufficient, as all aspects need to be addressed in an all-inclusive manner to reach the end point of a *self-governed forest* (Hajjar et al., 2011).

On the one hand, the best way to preserve forests is considered to be through governmental protection. On the other hand it is argued that varying CFM programs, with locally-implemented forest conservations are *the way to go* (Ostrom and Nagendra, 2006:2). However, a general agreement exists concerning the need for a mixture of different forest conservation strategies across the developing countries, incorporating public-, private-, and CMF areas. Moreover, as a rule of thumb concerning the development of such conservation strategies; Ostrom (2005) states:

> *If expected benefits from a change in institutional arrangements are not greater than expected costs for many appropriators, the costs of enforcing a change in institutions will be much higher than when most participants expect to benefit from a change in rules over time.*

Whether community-based commons management can lead to conservation and whether conservation can be entrusted to communities is highly discussed (Ostrom, 2005). However, I believe that REDD+ outcomes can be achieved through the adoption of CFM. Achieving the desired outcomes, though, will depend on the creation of conditions for achieving successful CFM. In 2007, the Woods Hole Research Center (WHRC) released a report[91] presenting bottom-up costs for implementing REDD in the Amazon rainforest. The study evaluated the compensation required to encourage land-owners to maintain and preserve their forest lands, which led to a proposed toolkit of policy and resource options that may be used to pay for opportunity costs, monitoring, management and social services. One of the proposed mechanisms to give local value to the standing forests was Payment for Environmental Services[92] (PES) (Nepstad et al., 2007).

[91] See Nepstad et al. (2007): *The Costs and Benefits of Reducing Carbon Emissions from Deforestation and Forest Degradation in the Brazilian Amazon*, WHRCs report.
[92] Payment for Environmental Services is also known as Payment for Ecosystem Services.

5.2.2 Payment for Ecosystem Services (PES) – Conservation finance

For the purposes of this thesis, *PES is defined as a voluntary, conditional agreement between at least one seller*[93] *and one buyer*[94] *over a well-defined environmental service – or a land use presumed to provide that service* (Wunder, 2007:48).

The objective of PES-programs is to secure the providing of environmental services to water, carbon and biodiversity. Payment is given to support land-use or agricultural practices that are able to protect or restore natural ecosystem processes. PES-programs are meant to serve as economic incentives for local forest managers to protect their forests, through paying landowners the opportunity costs of forgone forest conversion[95]. Indeed, PES[96] is considered as reward for sustainable forestry, and may therefor be a solution to overcome potential problems of CPR dilemmas. PES is considered an important policy mechanism for successful sub-national REDD-programs (ibid.).

Several Latin-American countries have during the last decade accumulated much experience in PES-programs. In Brazil, however, the main strategies of environmental policy-makers have been through regulations, mainly land-use policies, such as the Forest Code. A turning-point in this tendency can be recognized in late 2000's, as suggested by the design of PES projects (Wunder, 2007). Drawing on PES experiences in other Latin-American countries, especially Mexico[97], Brazil is currently designing different PES programs. In Brazil the PES[98] management and financing are either local or regionally financed, and there are obviously multiple economic and social factors that influence the feasibility, implementation and impact of such systems. In this context, the opportunity costs play an important role in determining the service-provider participation. Because PESs are payments for sustainable land use, PES-programs requires reasonable secure land tenure. In Brazil, despite that 50% of the threatened forests have the economic conditions needed for feasible PES-programs, less than 25% of the farmers living in these areas own land, creating a problem for implementing

[93] The *seller* is defined as the *conservation agent*; meaning any agent who wishes to encourage landowners to supply environmental services (i.e. sustainable forest management) (Ferraro, 2007:810).
[94] The *buyer* is defined as the *landowner*; meaning an individual with land-ownership who can supply the environmental services demanded by the seller (Ferraro, 2007:810).
[95] Comparable to international REDD-donations, where nations get payments based on their documented results regarding reductions in forest emissions.
[96] Keeping in mind that deforestation across and within tropical countries has many different causes, and consequently not all of them are solved trough the use of the same PES-programs or PES-programs at all. PES is just one out of several tools for reducing deforestation, and is therefor not necessarily an appropriate instrument.
[97] Mexico`s CFM approaches are considered as a global success model for sustainable landscapes (see Bray et al, 2002).
[98] While PES most often takes the shape of financial transfers, they can also apply to a broader set of rewards, including technology transfer, capacity building, and debt relief (Costenbader, 2011).

such systems (Costenbader, 2011). Furthermore, studies conducted in Brazil and other tropical countries (e.g. Engel et al, 2008) show that developing payment arrangements in communities with insecure land tenure could increase the attractiveness of invading these areas, leading to land grabbing with significant adverse consequences for users of the forests-areas and for the forests themselves. This is in line with the importance of Ostrom`s (1990) first principle regarding securing clearly defined boundaries and access rights to the resource. Moreover, even though the poorest individuals – usually the landless and indigenous peoples – often inhabit both financial and lifestyle motivation to protect their forests, they don't receive PES because of their lack of land-ownership. This situation contradicts the aspect of PES as a way to promote sustainable development (Vatn et al., 2009). As participation in PES is voluntary for landholders, PES is not considered to change the behavior of users whenever the offered payment is less than the opportunity cost of conservation[99]. This in itself is a desirable characteristic of PES and indeed one of the reasons that PES is expected to be efficient (Engel et al, 2008). This is why environmental payments are expected to work where ecosystem services are under some degree of present or future threat, and where the opportunity costs for alternative land use or land practices are relatively low (Wunder, 2007).

The economist Ronald Coase (1960) argued that for goods or services to be bought and sold, these goods and services must have well-defined property rights to facilitate exchange. In the case of PES, this would imply assigning definitive property rights for the respective ecosystem services even if many of these services exhibit public good characteristics. As shown, one way to decentralize forest management, by securing communal on-the-ground rights over their forests, is through governmental establishments of CFM. Certainly, there are a wide range of legal and political PES-programs, at both state and federal level in Brazil. Hence there are user-financed[100] and indirect, state-financed PES-schemes. The former is, however, among the more commonly known PES-programs. These payment schemes include self-organized private deals in CMFs –Indeed, research (e.g. Wunder et al., 2008) has found that direct, user-financed PESs provide more efficient outcomes, than indirect state-financed PES schemes. Explanations for this finding are due to the micro-economic variables such as better monitoring and greater willingness to enforce conditionality in community based PES, than in government-financed programs. However, Government financed PES can be cost-effective due to administrative economies of scale in addition to be

[99] Keeping in mind that the PES contract setting may be subject to adverse selection (i.e. hidden information), stating as a problem for the estimation of landholders alternative cost.

[100] I.e. the buyers and sellers of ecosystem services are found in the same area.

made more efficient if contract designs and rules are improved. Furthermore, experience to this date show that there is an increasing need for consultation with communities on payment design, involving individuals or local groups receiving benefits such as cash or in-kind benefits[101]. Public or indirect state-financed PES can be derived from taxes. Such payment projects include a bill for federal income tax – used for ecological charities – or it may take form as a state and federal property tax – creating natural heritage reserves from private areas (Engel et.al, 2008). Economic theory regarding taxation often mentions the problem related to inefficiencies and free-riding. Accordingly, and with respect to the above mentioned, communities are considered to benefit more if PES goes directly to the landowners through user-financed programs.

During the last years, several of the Brazilian states have promoted the development of sub-national REDD-projects with various PES aspects. These pilot-projects are funded by sales of carbon credits, state, and federal climate funds (such as the Amazon Fund), donations from private corporations, NGOs and humanitarian organizations. Brazil is only in its beginning to mobilize a PES-Carbon program. In this context, much of the focus is directed towards the Juma Project (as presented earlier). One of the Amazon Fund PES pilot projects is indeed the 2007 *Bolsa Floresta* program, implemented in the Juma Project. The Amazon Fund supports the Bolsa Floresta Income and –Association components. In addition, the Funds investment priorities are in sustainable production activities, such as bee keeping for honey production, fish-farming or forest management, and in the support of local community associations (Norad, 2011). In order to be qualified to receive the monthly payments in the Bolsa Floresta program, families must attend a training program on environmental awareness and commit to zero deforestation. In addition, all children must be enrolled in school (The Amazon Fund, 2011). Indeed, this PES-program is aimed at promoting development both within forest preservation and economically, through its monthly payments and increase of the communities' human capital. Another Brazilian PES initiative is made by the government of Acre State. As elsewhere in the Amazon, deforestation in Acre is an issue that has, at times, seemed intractable. However, in 2009 they developed an innovative regional REDD model explained in the *Plan for Valuing Forest Assets, Payment for Environmental Services – Carbon Project Guidelines*[102], and it is an example of how regional and project-level

[101] In this context, in-kind benefits are goods and services provided for free by the government, such as building of infrastructure, education and healthcare centers (Wunder, 2007).
[102] It was recently renamed *Program of Incentives to Environmental Services: A REDD+ proposal to Acre State.* Hereafter it will be referred to as the PES-Carbon program.

coordination can look in practice. The state of Acre is experimenting with a nested approach, linking sub-national activities with the gradually evolving national approach to REDD (Costenbader, 2011). However, the challenge connected with such nested approaches is the possible harmonization between the two levels.

No matter how high the level of agreement may be to an initial PES program, there are always conditions that will tempt some individuals to cheat. Thus, without any monitoring of rule enforcement, few systems are able to survive in the long run.

5.2.3 Monitoring – Securing sustainable forest management

The development of precise and reliable baselines is a crucial element of any PES agreement, both at micro- (sub-national REDD) and macro (international REDD) levels. For PES programs to work effectively, buyers of PES services must have confidence that they will actually receive the full value of the service they are paying for (avoid cheating/moral hazard). Accordingly, crediting sustainable forest managing through PES will require a developed system for monitoring, verification and reporting (MVR). Satellite remote sensing is the most frequently used techniques for observing land-use changes (Ostrom & Nagendara, 2006). Brazil is one of the most advanced countries in the world in terms of its capacity to monitor the Amazon through satellite technology. Actually, the Amazon Monitoring Program through Remote Sensing of the National Institute of Spatial Research (INPE) [103] is considered one of the most modern in the world[104]. Current specifications allow 20% of the Amazon Fund to be used towards developing monitoring systems and other control systems for mapping deforestation outside the Amazon biome and the country. However, the Fund does not support projects outside Brazil, which represents capacity constraints for INPE regarding the provision of services to people outside the country (Norad, 2011). Moreover, the capacities of the existing satellite monitoring systems within the Legal Amazon are limited; due to their primary mapping of large-scale deforestation. As a result of the satellite's difficulties in spotting small-scale deforestation, the small-scale cutting and burning of trees, by loggers and farmers, have increased over the years. In other words, the deforestation pattern in the Amazon seems to have changed from lower large-scale towards larger small-scale deforestation. Furthermore, monitoring of other biomes in Brazil, other than the Legal

[103] DETEX, PRODES, DEGRAD and DETER; are four different sensors for monitoring deforestation. All of the collected data are made publicly available.

[104] In contrast to other tropical countries, such as the Congo basin countries, which have just started to develop the capacity to use satellite imagery.

Amazon, is less developed. This creates unavailable coverage of time-series for these areas; making it difficult to create baselines for PES scheme (Norad, 2010:31-33). Even though it is beyond the scope of NICFI or the Amazon Fund to respond directly to these challenges, strategic support could help to establish projects that could make more effective and practical responses. One such contribution by the Fund is its support to the above mentioned Bolsa Florestra project. Indeed, in Bolsa Floresta the monitoring of the program is done both by satellite mapping and field verifications.

In the context of Ostrom`s (1990) conceptual framework, successful communities often have a few common principles such as monitoring and sanctioning of the participants. In essence, where the satellite systems fail to monitor forest areas, local communities can succeed. In other words, it is also necessary to develop local-level initiatives for MRV aimed at securing forest conservation. Moreover, local forest groups may do a better job at patrolling, monitoring, and protecting their forests land, than would central governments, in the long run (Ostrom & Nagendra, 2006).This can indeed be achieved through the Funds support of local sustainable projects. Recent studies by Coleman[105] (2009) and Coleman & Steed[106] (2009) found that a major variable affecting forest conditions was the investment by local users in monitoring. One way to promote a more effective local monitoring can be through the establishment CFM programs. Coleman`s (2009) study showed that when local users are given landownership and harvesting rights, they are more likely to monitor illegal uses themselves. Such informal monitoring relies on local norms to sanction a rule breaker. Resource users have devised a variety of formal or informal ways to sanctioning one another if rules are broken. In some communities, the locals rotate into the monitoring position, so that everyone takes on the role of an authority. In other systems, such roles are allocated to specific hired monitors, to decrease the possibility of cheating. Indeed, a study[107] by Gibson, Williamson and Ostrom (2005), concerning forest conditions used by 178 forest communities, living in 12 different countries, found a statistically significant relationship between regular monitoring and sanctions among local groups and the enhancement of forest conditions. Moreover, this result was observed regardless of variables such as the user group`s level of social capital, forest dependence and formal organization. Most people would probably agree that rule enforcement is necessary for establishing sustainable CPR management in the long-

[105] See Coleman (2009): Institutional Factors Affecting Ecological Outcomes in Forest Management. *Journal of Policy Analysis and Management*, 28(1): 122-146.
[106] See Coleman & Steed (2009): Monitoring and Sanctioning in the Commons: An Application to Forestry. *Ecological Economics*, 68(7):2106-2113.
[107] See Gibson et al. (2005): *Local Enforcement and Better Forests*, World Development 33(2), 273-284.

run. But there is, however, disagreement concerning *who* should monitor the rules. According to a 2010 comparative study[108] by Hayes and Persha – examining decentralized forest management in Mesoamerica and East Africa – institutional arrangements that establish local forest-users autonomy within rulemaking are more effective in conserving forests. Furthermore, their findings illustrate that the connection between local rulemaking autonomy and better forest conservation may be explained, in part, by links between the perceived legitimacy of the rulemaking process, local monitoring activities and hence, an overall agreement with the resulting rules.

The above discussion boils down to the fact that long-term sustainability may not be achieved if the initial set of rules, established by the users and the government, don`t match local conditions. Moreover, a multilevel, nested framework, which includes both formal monitoring (through satellite technologies) and informal monitoring (on-the-ground), is considered to be the most efficient and effective monitoring approach to acheive sustainable forest management.

5.3 Concluding remarks: Norway`s Climate and Forest initiative – will it succeed?

Serving as an economic incentive for preserving the Amazon, NICFI`s contributions to the Amazon Fund has a positive and relevant impact on Brazil. Indeed, the promise of a billion dollars will help speed up *the wagon of salvation* in Brazil, given, however, that the Fund invests in sustainable forest pilot projects.

Since REDD is primarily concerned with reducing deforestation, it is important to review the evidence that CFM has been able to reduce deforestation and degradation to date, without benefit of forest carbon valuation. However, for the success and realization of CFM`s, certain conditions will have to be present. Indeed, a successful communal sustained forest management will in large depend on institutional arrangements that; establish local users rulemaking autonomy, stimulate the flow of financial and institutional assistance for monitoring and enforcement of local rules and forest preservation, in addition to safeguard communities and their institutions from powerful, and at times corrupt, actors and agencies involved in forest exploitation. Moreover, political will to promote such a bottom-up policy approach to climate change, is essential for the above to be realized. This thesis has proposed

[108] See Hayes & Persha (2010): *Nesting local forestry initiatives: Revisiting community forest management in a REDD+ world*, Forest policy and Economics 12, 545-553.

that sustainable sub-national REDD- projects can be achieved when improving local communities' rights and economic incentives, through supporting pilot projects involving establishments of CFM, PES programs and Monitoring-systems. Moreover, without proper on the ground incentives and conditions, the supply of vertical REDD finances to tropical countries could intensify already existing problems and furthermore, increase incentives for overexploitation of forests. Indeed, this is also the case with horizontal REDD transfers – i.e. PES programs. As noted in the case of Brazil, PES`s are connected to property rights and, thus, the payment can end up at levels beyond the poorest locals in addition to potential exclusion of these individuals. Moreover, if the money allocated through PES is no more than the opportunity cost; there will be no actual net benefit, which makes the sustainable development strategy in REDD less comprehensible (Vatn et al., 2009:34).Current challenges also involve the many obstacles in reaching the poorest individuals in the remote lands of the rainforest.

Objectively, forest management under communal, public or private ownership will generally have the same probability of being successful or not. The outcome will depend on the context of the property regime and the forest area regarding *historical and legal* patterns, *political-economic processes, social relationships, biophysical characteristics, forest conditions, and people's experiences in managing natural resources* (Tucker, 2010:692-693). Indeed, the chances of successful forest governance increase when forest owners or groups of users are linked into networks or nested within multiple layers that support sustainable management (Ostrom, 2010).

However, there is still a long way to go before achieving large-scale REDD-iness in the Brazilian Amazon. But, designed and implemented appropriately, the proposed social, economic and environmental approaches for REDD are considered necessary for the long-term success of NCFIs funding in Brazil.

At this stage, I find it difficult to comment further in detail on how Norway`s contribution to the preservation of the rainforest should be shaped, and which requirements that should be crucial in the receiver country for such initiatives to be sustained in the long-run. Yet, it is considered essential that NICFI recognize the general principles for successful governance and continue to act in accordance with no *one-size-fits-all* policy. Thus, each forest must be evaluated and governed with respect to their specific contexts. Furthermore, both NICFI and the Amazon Fund, should consider Ostrom`s design principles as a starting point to examine whether a group of people managing forests are fit for REDD support or not.

Ostrom does not claim that her design principles are either necessary or sufficient, but rather that experience of robust CPR institutions suggests that these guiding rules increase the probability of long-term success (Ostrom, 2010). Moreover, I believe that progress based on these guiding rules can serve as a solid foundation for further evaluation, not only of REDD initiatives in Brazil, but also in other tropical countries.

> *We are fallible humans studying fallible human behavior within institutional structures constructed by other fallible humans. We should not act as if we know for certain how to achieve sustainable development. We can, however, recognize our growing capabilities and those of the individuals we study to experiment with rules, learn from the experiments, and, if the broader institutional and cultural milieu facilitates, gradually improve outcomes so they are sustainable over time* (Ostrom, 2008).

6.0 Conclusion and the Road Ahead.

6.1 Conclusion

The current achievements from the Norwegian- Brazilian bilateral REDD agreement is explained in Norad`s 18th evaluation report (Norad, 2011: 49-50):

> *It is not possible to claim that NICFI support is directly responsible for the character of current environmental policy, REDD debates or cuts in deforestation rates in Brazil…NICFI's support has been effective in that it has successfully stimulated Brazilian environmental and climate policy debates and efforts to reduce deforestation…NICFI's support has had a positive impact on momentum and direction of change in Brazil…*but there are*… a series of areas in which the effectiveness of NICFI support in Brazil could be enhanced in future.*

Accordingly, NCFIs contribution has indirectly influenced policies for sustainable development in Brazil. It is the Amazon Fund and BNDES who has carried out a series of exercises to both spread information about the importance of sustainable forest management, in addition to encourage local consultation on its content and direction. Human- and indigenous rights are an essential concern of NCFI. As emphasized, the main challenges for whether communities can benefit from REDD activities in Brazil; depend on the resolution of land tenure problems and user rights. Deforestation in Brazil is a result of policies that motivates agribusiness and economic development through the exploitation of CPRs. However, structural, economic and environmental changes have taken place in Brazil, which furthermore has changed incentives through policies that aim to value the standing forest. In this paper, I have tried to express that it is possible to achieve national REDD+ initiatives, given that sub-national programs aimed at benefiting the rural locals groups are established. Accordingly, given the right circumstances, improved CFM, PES`s and Monitoring-systems should be established in tropical countries to enable both serving local interests and promote sustainable forest management. However, as outlined, there is no *one-size-fit-all* solution in establishing REDD-schemes. Actually, to this date, favorable conditions are absent in the majority of the tropical countries, making the success of national REDD-programs difficult to achieve. Furthermore, even though Brazil has developed a series of mechanisms to secure and encourage local communities' rights and policy participation on REDD, there are still blockages in ensuring that these issues are given full expression. Indeed, as with most new projects, there are complexities and bureaucratic bottlenecks in the Brazilian REDD-initiative.

The main critiques and challenges for the future, within local sustainable forest management, concerns the complexities[109] and lack of transparency of the Amazon Funds application and evaluation procedures.

Clearly there are several challenges facing the long-term results and efficiency of NCFI. Developing countries differ in their capacities to reduce forest emissions based on variance in technical challenges related to monitoring of emission levels and baseline setting, carbon leakage[110] and political stability. Other challenges occur due to varying national circumstances concerning the causes of deforestation and forest degradation, in addition to different institutional capacity`s to influence and regulate the drivers (Ostrom et al 2007). On the one hand, REDD appears to be a *win-win solution* where the South, such as Brazil, receive payments to preserve their forests, and the financing North, such as Norway, receive carbon credits[111] and praise for participating in climate change mitigation strategies. On the other hand REDD might not become a success. As observed in the case of Brazil, some groups of people are more at risk than others, indicating the need for securing local interests and rights in the development of efficient and effective national REDD-programs (Ostrom, 2010). However, achieving a proper balance between decentralized governance structures (PFM), effective allocation of scarce resources (CPR governance and tenure) and fairly applied instruments for benefit sharing (PES and MVR-systems) appears to represent one of Brazil's principal challenges in adopting REDD+.

REDD-initiatives, at multiple levels, are considered an important component of the fuel needed to *speed up the wagon of salvation*, not only in Brazil, but in the world as a whole. In light of Ostrom`s polycentric approach to climate change, it is indeed important to think globally when designing a long-term model for REDD. But, given the slowness and conflicts involved in achieving an international solution, acting locally, through sub-national programs designed to reduce individuals emissions, is by far the most effective and efficient model for REDD in the short-run. However, for the realization of REDD, no matter level of approach, it is essential that the value of forests – both in economic and in environmental terms – are sufficiently acknowledged. Accordingly, substantial political will – with a nested

[109] E.g. until the end of 2009 only five out of a total fifty projects were granted support by the Fund (Norad,2010).

[110] *Carbon leakage is defined as the increase in emissions outside a region as a direct result of the policy to cap emission in this region. Carbon leakage means that the domestic climate mitigation policy is less effective and more costly in containing emission levels, a legitimate concern for policy-makers* (Reinaud, 2008).

[111] A REDD carbon credit is a carbon market mechanism created to reduce emissions from deforestation and forest degradation in developing countries (Norad, 2011).

sustainable social, economic and environmental policy – is considered essential for forests being *worth more standing than cut.*

6.2 The road ahead

There are certainly many issues that could be mentioned regarding the road ahead for REDD, and many of the challenges have already been mentioned. However, I have chosen to focus on the following areas because I believe they are among the most essential.

The road ahead should include formalizing forest property access rights of local forest peoples. This is considered as the necessary first step to introduce forest lands into REDD+ projects. Furthermore, planners of national REDD programs who choose to include CFM and PES elements, should bear in mind Ostrom`s design principles found in successful communal CPR systems. As for the future success of NCFIs support in Brazil, what is probably needed is a tightening of rules and control to ensure that the donations are indeed used correctly. Enhanced measures of effectiveness, including the speeding up of the Amazon Fund`s application process and support of sustainable projects, specifically targeted at securing local rights in community forest preservation, is necessary.

> *It is important that policymakers not presume that they are the only relevant actors in efforts to solve collective action problems. They have partners if they are willing to recognize them* (Ostrom, 2004:2)

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